

Grieving Without God: Comparing Posttraumatic Growth, Complicated Grief, and Psychological
Distress in Believers and Atheists During Bereavement

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ABSTRACT

GRIEVING WITHOUT GOD: COMPARING POSTTRAUMATIC GROWTH, COMPLICATED GRIEF, AND PSYCHOLOGICAL DISTRESS IN BELIEVERS AND ATHEISTS DURING BEREAVEMENT

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The purpose of this dissertation was to examine coping and outcomes of grief for atheist individuals during bereavement. The landscape of grief research has significantly changed since the days of Freud, and widely accepted stage theory models of grief have not held up to empirical review (Wortman & Silver, 1989). Emerging research examines factors that may lead to positive changes as a result of loss or trauma, known as posttraumatic growth. However, atheist individuals continue to be an understudied group in the psychological and bereavement literature, while people with religious beliefs continue to receive the most focus (Brewster, Robinson, Sandil, Esposito, & Geiger, 2014; D'Andrea & Sprenger, 2007). This study explored how cognitive (e.g., assumptions about the world), existential (e.g., meaning), and behavioral (active and emotional) coping methods are associated with posttraumatic growth, complicated grief, and psychological distress in a believer and atheist sample after the death of a close friend or family member. Specifically, posttraumatic growth, complicated grief, and psychological distress were regressed onto the three types of coping (cognitive, existential, and behavioral) using a hierarchical regression analysis. The first analysis controlled for demographic variables and the second analysis consisted of matched groups on demographic variables that were found to be associated with grief outcomes in prior research (e.g., Bonanno et al., 2008; Bonanno,

Galea, Bucciarelli, & Vlahov, 2007). Exploratory bivariate correlations were conducted to assess interrelations between the variables of interest. Additionally, MANOVA was used to assess differences in demographic variables between the believer and atheist sample. Significant cognitive, existential, and behavioral coping methods were found to be associated with posttraumatic growth, complicated grief, and psychological distress. Furthermore, the endorsement of a belief in God(s) was significantly and positively associated with posttraumatic growth, but also significantly and positively associated with complicated grief and psychological distress. Results from this study can be used to identify appropriate clinical strategies for counselors working with grieving atheists, and will deepen the breadth of literature on bereavement and coping within diverse populations. Limitations and directions for future research are also discussed.

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CHAPTER ONE

INTRODUCTION

The prevalence of people who are atheist in the United States (US) is on the rise, with four to nine percent of the population identifying as nonbelievers (Zuckerman, 2006). Despite this growth, atheists were largely omitted from both psychological and bereavement literature (Brewster, Robinson, Sandil, Esposito, & Geiger, 2014; D'Andrea & Sprenger, 2007), as most empirical studies on bereavement and belief focus on how religious belief influences the psychological outcomes of loss (e.g., Koenig, George, & Siegler, 1988; McIntosh, Silver, & Wortman, 1993). Historically, much of the literature on coping with loss focused on stage models of grief (e.g., Kübler-Ross, 1969) or on the concept of grief work, which was described as the emotional process of coming to terms with loss (Stroebe, Schut, & Stroebe, 2005). Recently, scholars have found flaws in the concept of grief work (Wortman & Silver, 1989) and have examined other ways that the bereaved experience loss (e.g., Bonanno, 2004; Tedeschi & Calhoun, 2004).

Bereavement Research

Grief was examined from the earliest days of modern psychological thought, with Freud (1917) distinguishing normal versus abnormal responses to loss. As a secular Jew who considered religious beliefs to be a primitive form of wish fulfillment (Freud, 1927), Freud's theory of grief did not include any aspects of religion. Additional theories of grief were proposed after Freud that focused on the notion of *grief work*, or the emotional process of coming to terms with loss (Stroebe, Schut, & Stroebe, 2005). Stage model theories of grief were also popularized during this time (e.g., Bowlby, 1980; Kübler-Ross, 1969; Lindemann, 1944; Parkes, 1975; Worden, 1991). The stage theory model of grief suggests that grief is experienced in a

predictable and linear manner, often ranging from denial to eventual acceptance (Kübler-Ross, 1969).

Critics of the stage model of grief noted that these models suggest that grief is something pathological that needs to be cured (Wada & Park, 2009), as opposed to a natural response or a natural fear of death (Yalom, 1980). Additionally, many theories of grief were not empirically supported, and researchers were unable to find support for a linear model of grief (Wortman & Silver, 1989). More recent scholars have suggested that resilience is actually much more common than previously thought, and may actually be the most common response to loss (Bonanno, 2004). Furthermore, researchers have begun to examine how an individual's belief system might influence the way one responds to loss (e.g., Janoff-Bulman, 1989).

Much of the empirical research on bereavement and belief has examined how religious beliefs, such as the belief that the deceased are in a "better place" or that individuals will someday see their loved ones again in the afterlife, can help with coping and posttraumatic growth (e.g., Chapple, Swift, & Ziebland, 2011; Koenig, George, & Siegler, 1988; McIntosh, Silver, & Wortman, 1993). Indeed, religious beliefs implicitly and explicitly permeate conversations regarding the death of loved ones, with well-intentioned statements such as "they are with God now" or "you will see them again in Heaven" regularly offered to help soothe grief. However, the experiences of atheists have largely been ignored. A recent review of the atheist literature found that only one study focused on topics of death, loss, and bereavement for atheists (Brewster et al., 2014). Despite the lack of research specifically on atheists and bereavement, there has been an increase in online communities and non-academic literature that has focused on experiences of atheist bereavement (Christina, 2014). The increased focus on atheist experiences

of bereavement has still not focused on aspects of change often studied in other populations, such as posttraumatic growth.

Posttraumatic Growth

Instead of focusing solely on the negative outcomes of loss, researchers have examined areas of posttraumatic growth, which is defined as positive psychological changes after loss or trauma (Calhoun & Tedeschi, 1999, 2001). Specifically, those who reported higher levels of posttraumatic growth also reported higher levels of self-worth; benevolence of the impersonal world; luck; beliefs that they are worthy, good, and moral; benefit finding, sense making, and active coping styles (Engelkemeyer & Marwit, 2008; Tedeschi & Calhoun, 2004; Wild & Pavio, 2004). The idea that suffering can be transformative has been noted as a common theme in religious texts (Tedeschi & Calhoun, 1995), but scholars of posttraumatic growth also note that atheists can also experience posttraumatic growth due to a greater engagement with fundamental existential questions after trauma or loss (Tedeschi & Calhoun, 2004). However, no known studies about atheists and posttraumatic growth currently exist.

Factors Contributing to Posttraumatic Growth

Since there is little empirical evidence to support the concept of grief work or stage theories of bereavement, several other areas that examine how people cope with loss have been explored. Much of the recent literature examines how assumptive worlds, meaning making, and coping styles (which for ease, are respectively and very loosely classified as cognitive, existential, and behavioral methods of coping throughout the paper), can lead to posttraumatic growth (e.g., Janoff-Bulman, 1989; Tedeschi & Calhoun, 2004; Wild & Pavio, 2004). These processes can be especially useful in examining how atheists cope with loss, as they are not predicated on a religious belief system.

Cognitive coping. An assumptive world is described as an individual's worldview and way of making sense of themselves in the world (Parkes, 1971). These worldviews are often very difficult to change, and are actively reinforced as new information which is interpreted in ways that strengthen existing schemas (Anderson, Lepper, & Ross, 1980, Langer & Abelson, 1974). Janoff-Bulman (1989) suggests that assumptive worldviews are created from several basic assumptions: (a) benevolence of the world, (b) worthiness of self, (c) controllability or self-controllability, (d) chance or luck, and (e) meaningfulness of the world. Although some researchers have suggested that a religious worldviews might be helpful in cognitive processing of events and meaning making (McIntosh, 1995), others have noted that atheists also have distinct worldviews that can serve a similar function to religious worldviews (Mayhew, 2004). For example, it is common for atheists to describe death as harsh truth that one must face and a natural part of the life cycle (Lee, n.d.). Beliefs such as this may lessen the shock of loss for the bereaved and, as a result, not impact levels of posttraumatic growth.

Existential coping. Scholars have conceptualized the process of meaning making as benefit finding and sense making (Holland, Currier, & Neimeyer, 2006). Benefit finding has been described as the “silver lining” which can sometimes accompany loss, such as a greater sense of self, renewed goals, a new appreciation for life, or stronger bonds with others (Davis, Nolen-Hoeksema, & Larson, 1998). Sense making has been described as the attributions that one makes about an event in order for it to fit within the assumptions one holds about the world, such as “God’s will” for religious individuals or loss as a natural part of life for atheists (Chappel et al., 2011; D’Andrea & Springer, 2007; Davis et al., 1998). A common theme for atheists, in regards to sense making, is the belief that individuals are in charge of making their own meaning in life (Carter, 2014). When events such as trauma and loss do not fit within one’s assumptive

worldview, making meaning of the event is a way to reduce feelings of distress and, in some cases, can lead to posttraumatic growth (Tedeschi & Calhoun, 2004). Although existential coping styles have not been studied with atheist individuals, it is likely that there will be variation in levels of sense making and benefit finding, and that higher levels in each would be associated with higher levels of posttraumatic growth.

Behavioral coping. Coping has been defined as the way one responds to a threat (Folkman & Lazarus, 1980; Lazarus, 1966). Some methods of coping have been found to be more effective than others in responding to loss. For example, active coping, which includes positive reinterpretation, use of social support, religious coping, humor, restraint, acceptance, suppression of competing activities, and planning, accounted for 22% of the variance in scores on the posttraumatic growth inventory (Wild & Pavo, 2004). No significant increases for posttraumatic growth were found with emotional coping methods, which includes mental disengagement, focus on and venting of emotions, denial, behavioral disengagement, and substance use (Wild & Pavo, 2004). Moreover, active coping was found to be positively associated with optimism and negatively associated with hopelessness (Rogers, Hansen, Levy, Tate, & Sikkema, 2005). It is likely that atheists engage in a variety of coping methods and would find similar gains in posttraumatic growth when using an active coping style.

Summary

The landscape of bereavement research has dramatically changed from Freud's early ideas of grief work and the stage models of grief proposed by scholars in the mid-1900s. Despite increased examination of factors that can lead to posttraumatic growth, atheists continue to be left out of the discussion (Brewster et al., 2014; D'Andrea & Sprenger, 2007). This study will examine posttraumatic growth for atheist people in the areas of cognitive, existential, and

behavioral coping methods. As limited research exists on atheists, this study aims to explore ways in which atheists respond to loss that is similar to other populations, as well as identify methods that are specific to atheists. In addition to adding an understudied group into the bereavement literature, insights on atheist responses to loss will allow for a better understanding of what coping methods might be most helpful for atheists who come to counseling due to the loss of a loved one.

CHAPTER TWO

LITERATURE REVIEW

Chapter Two provides a summary of the literature on bereavement, with an emphasis placed on the understudied group of atheists. Since much of the recent literature on bereavement focuses on religious belief systems and coping, parallels will be drawn between religious coping and hypothesized atheist coping styles. This chapter will first outline early psychological theories regarding bereavement that focus on *grief work*, defined as the emotional processing of grief. Then critiques to the traditional grief work conceptualization of responding to grief will be provided, followed by literature highlighting the influence of atheist beliefs on bereavement. Finally, cognitive, existential, and behavioral coping styles will be examined with an emphasis on how these coping styles can be used by atheists.

The History of Bereavement Research

Grief is defined as a natural response to loss that a person experiences in emotional, physical, behavioral, cognitive, social, and spiritual ways (Greenstreet, 2004); whereas *mourning* is the outward expression (e.g., crying) of these internal processes and *bereavement* is the period of time in which both grief and mourning may occur (Buglass, 2010). Reactions to grief and loss have been examined since the earliest days of modern psychological thought. Freud (1917) laid the groundwork on the psychological study of the experience of loss by explicating the differences within mourning, which he described as normal grief after the loss of a loved one, and melancholia, which he described as a pathological and harmful reaction towards a loss. In mourning, Freud noted that the loss made the world seem empty, with melancholia, it was the “ego itself” (p. 245) that seemed empty and worthless. Although Freud was born into a Jewish family, he was well-known for his antipathy towards religion, considering it a form of primitive

wish fulfillment (Freud, 1961). As a result, he did not include religious beliefs or practices in his theory of grief and mourning.

Indeed, a multitude of studies emerged in the 20th century that dealt with the topic of *grief work*, which has been defined as the process of coming to terms with loss through emotional expression (Stroebe, Schut, & Stroebe, 2005). Many of these theories were grounded in Freud's psychoanalytic school of thought, and, as a result, omitted religion. Additional theories of grief elaborated on the concept of grief work, going so far as to assume that the emotional expression of grief must be part of a normal process of bereavement – such that, a lack of processing these strong emotions indicated resistance of the bereaved and made the process of working through the loss impossible (Deutsch, 1937; Marris, 1958). The prevailing thought was that if feelings of grief were not processed emotionally, the pain of loss would continue to be felt by the bereaved (Rando, 1984).

In order to address experiences of the bereaved, many theorists developed their own models of grief that assumed distinct stages (e.g., Lindemann, 1944; Kübler-Ross, 1969; Parkes, 1975; Bowlby, 1980; Worden, 1991). Perhaps the most influential early model of grief was the stage model proposed by Elizabeth Kübler-Ross in the late 1960s. Kübler-Ross (1969) identified five distinct stages of grief during her time as a psychiatrist working with dying patients: denial, anger, bargaining, depression, and acceptance. This model describes a predictable and linear progression of coming to terms with the end of life. While this model was created to better understand the processes of those who had been given a grave diagnosis and were currently in the process of dying, these stages were also used to understand the psychological processes of the bereaved (Buglass, 2010).

Despite the mainstream acceptance of the stage theory model of grief and the apparent theoretical validity of their claims, these models were not without critics. A major concern with the stage model conceptualization with grief is that it assumes uniformity in the experience of grief. Thus, any response that deviates from the linear process outlined in many of these models would indicate abnormality or avoidance. Additionally, scholars have noted that a stage model of grief has a tendency to “medicalize,” suggesting that grief is something pathological that needs to be cured (Wada & Park, 2009, p. 663).

As the stage theory model of grief continued to face scrutiny by bereavement scholars, additional factors were examined to better understand how to help those who are grieving. Existential theorists, such as Yalom (1980), proposed that the awareness of one’s own mortality is a primary aspect of anxiety, and that an inability to deal with the “terrifying fear of obliteration” (p. 27) can result in psychopathology. For existentialists, religion is a product of a natural fear of death, and as a result, is often thought of as a way to assuage death anxiety. Existential theory provided an additional way to understand what death and loss means to people based on their belief systems and methods of making meaning in life. Existential theorists in psychology lead the way for understanding grief as a normal part of the human condition, rather than a pathological response that occurs after the loss of a loved one. However, most empirical examinations of belief systems and meaning making include people that are religious, while atheists and other nonbelievers are often absent from the discussion, despite a historical focus on psychological processes independent of religion. The next section will further discuss how bereavement research has changed over time, and how belief systems are incorporated into the current understanding of grief.

Current Theories on Bereavement

Modern scholars, dissatisfied with the prevailing stage model conceptualization of bereavement that was uncritically accepted as truth, emphasized the need for an empirical investigation of grief processes. An influential study by Wortman and Silver (1989) failed to find support for a consistent and linear process of bereavement. Specifically, they explored several myths that had been perpetuated by prior bereavement theorists by reviewing many common assumptions put forward from a variety of influential studies on bereavement research. They describe one myth as the idea that distress or depression always occurs after a loss and a second myth as the belief that those who do not experience distress are in denial, too emotionally weak to process their loss, or not able to form proper attachments with others. Simply put, early theorists would say these individuals are responding pathologically due to the lack of a significant emotional reaction. An examination of the data on distress and bereavement suggests that this is not always the case, and Bonanno (2004) posits that resilience is much more common than previously thought, and might in fact be the *most frequent* type of response to loss or other adverse events.

To examine the prevalence of psychological distress after bereavement, Middleton and colleagues (1996) conducted a longitudinal study measuring distress in bereaved participants at approximately 1-month, 10-weeks, 7-months, and 13-months post-loss. The study included 158 participants that came from three different groups: 53 widows and widowers under the age of 70, 52 adults who recently lost a parent, and 53 parents who lost a child from 1-year-old to 18 years old. Participation rates for all four times were 47%, 44%, and 32%, respectively. Participants completed the Core Bereavement Items (CBI) section of a bereavement questionnaire (Burnett, Middleton, Raphael, & Martinek, 1997) at each stage of the study. Mean CBI scores were

analyzed using a cluster analysis. Although there were significant differences between the three groups, with bereaved parents exhibiting the most distress followed by widows and widowers and adult children who had lost a parent, all groups had a low mean CBI score at time 1. All scores declined over time with the exception of one participant who was also seeing a psychiatrist for treatment of bipolar disorder at the time of the study. Middleton and colleagues noted, “there were no patterns found which were indicative of delayed or absent grief” (p. 170).

Another myth (Wortman & Silver, 1989) is that people must attempt to work through their grief by expressing their feelings with others. An analysis of the literature on the effectiveness of emotionally expressive methods of responding to grief, such as counseling, receiving social support, and emotional disclosure, found gains in the well-being of the bereaved to be mixed or nonsignificant (Kato & Mann, 1999; Stroebe, Schut, Stroebe, 2005). Neimeyer (2000) reviewed the literature of grief therapy outcomes from 1975 to 1998 and found 23 total studies containing over 1,600 participants. He analyzed the efficacy of grief counseling to estimate treatment-induced deterioration, which he defined as the degree to which participants receiving treatment are worse off compared to the control group. The analysis of these 23 studies indicated that only 55% of bereaved individuals found any kind of benefit from engaging in grief work. Furthermore, after estimating treatment-induced deterioration, he found that 38% of participants would have actually experienced less distress if they were in a control group. These results indicate that grief work might not only be ineffective for a large percentage of the population, but might also be damaging.

Wortman and Silver (1989) proposed an additional myth, which is the expectation that one will fully recover from grief. They noted many of the stage theorists (e.g., Bowlby, 1980; Kübler-Ross, 1969) have a final stage or acceptance or recovery without a specific timeline on

when this stage should be achieved. Support for this myth can be found in a study on long-term bereavement resolution on a sample of widows and widowers (Zisook and Shuchter, 1986). The participants engaged in semi-structured interviews with a focus on their experiences as a widow or widower and completed a questionnaire that assessed for somatic and physical symptoms of grief, depression, anxiety, social adjustment, medical history, alcohol abuse, role changes, and self-esteem. Interviews and questionnaires were given at 4, 7, 10, 13, 16, 19, 22, 25, 37, and 44 months post-loss. A total of 70 participants were included in the study, with 60 completing their first interview at one month post-loss and 10 completed their first interview at four months post-loss. Participants included 40 women and 30 men, with a mean age of 50 and a range of 24 to 66 years. The mean age of their spouse at the time of death was 52, with a range from 29 to 95 years. Furthermore, 60% of the spouses died after a chronic illness and 37% died unexpectedly, the type of death for the remaining 3% were not reported. Results from the analysis indicated that distress was highest at one month post-loss with most participants exhibiting a decline in distress over the course of the next four years. However, a subset of the sample continued to describe feelings of sadness and depression at four years post-loss. Several participants reported feeling responsible for the death and 8% reported anger at the four-year mark. Despite the resilience shown by many individuals, it is clear that not all will return to a baseline level of functioning or experience any degree of posttraumatic growth as a result of the loss.

A final myth described by Wortman and Silver (1989) is the eventual resolution that the loss has occurred. They state that full acceptance of the death is expected to occur both intellectual and emotionally. Intellectual acceptance is described as the cognitive understanding that the loss has occurred and the ability to make sense of it, while an emotional acceptance is described as the ability to think about the loss without intense emotional pain (Parkes & Weiss,

1983). As described previously, some individuals might not experience much distress at all, while others will still report a high degree of distress years after the death occurs. Individuals may also experience a process of emotional and cognitive processing that allows them to understand personal growth and to make sense of the loss even without coming to a complete feeling of acceptance by reassessing what they find most important in life a result of their loss (Tedeschi & Calhoun, 2004).

With the mounting evidence suggesting that the bereaved do not necessarily go through stages of grief that need to be resolved by emotional expression, other methods of coping with grief were examined by researchers. The role of beliefs and behaviors began to take over the role that emotional processing once held in terms of how one processes grief. Although early theorists described the psychological processes of grief without reference to religion, the role of religious beliefs became widely studied as factor that was thought to be helpful during bereavement. Meanwhile, those who did not have any religious beliefs, such as atheists, have been left out of the discussion. The following sections illustrate the examination of how religious beliefs were used as a way to cope with bereavement, while also providing the argument that atheist beliefs can serve the same function.

Belief-Systems and Bereavement

Religiosity and Spirituality

Worldwide, religious and spiritual beliefs are often thought to assist with the grief of death. A Pew survey estimated that 84% of the worldwide population – or 5.8 *billion* people – consider themselves to be religious (Lugo et al., 2008). Even though religion is so widespread, a single, universal definition of what it means to be religious does not exist. A specific definition becomes even more difficult when considering the distinction between religion, spirituality, and

those who are questioning exactly what they believe (Wortman & Park, 2008). Pargament (1997) notes the distinction between the *narrow* conceptualization of religion described as, “institutionally based religious involvement, dogma, and ritual,” and the *broad* conceptualization of religion, described as, “both institutional religious expressions and personal religious expressions, such as feelings of spirituality, beliefs about the sacred, and religious practices” (p. 4). One proposed reason for the ubiquity of religious belief (however defined) is its utility in helping people come to terms with loss (Wortmann & Park, 2008). For example, a belief system that proposes eternal life after death can be comforting for those who have lost a loved one (Baston & Stocks, 2004). However, it is likely that atheists also adopt worldviews that allow them to fit instances of death and loss into their preexisting schemas in a similar way to religious individuals.

Religiosity and bereavement. As previously mentioned, religion is commonly studied in the context of bereavement. One reason for this is the assumption that religion can provide comfort for the bereaved, particularly in instances where the loss is sudden (McIntosh, Silver, & Wortman, 1993). Indeed, a study on the coping strategies during stressful life events for an elderly population found that the most commonly used coping method was religion (Koenig, George, & Siegler, 1988). Koenig and colleagues (1988) used a stratified random sampling method to gather a gender balanced sample of adults, 55 to 80 years old. The study was limited, in that, all participants were white and the vast majority of the sample was well-educated and from a Protestant background. The researchers used semi-structured interviews to assess for participant’s worst and best events of the present time, the last 10 years, and their whole lives. A total of 556 coping strategies were mentioned, with religious coping as the most frequent method of dealing with stressors throughout the lifespan. The three most common methods of religious

coping were trust and faith in God (31%), prayer (27%), and help and strength from God (17%). Interestingly, religious supports that include a form of interpersonal support ranked from number four to number six most helpful, and included help from church friends (7%), church activity (6%), and minister's help (5%). Results of the study suggest a method of using one's religious belief in a personal way as opposed to benefitting from the support of other church members or the church leader. Additionally, since the top methods listed for coping in this study were personal rather than social supports, it is possible that atheist individuals would also have coping strategies that would be just as effective.

To further explore how beliefs influence bereavement, later researchers conducted a qualitative analysis that examined the role of religion and spirituality for bereaved individuals who had lost someone to a traumatic death, such as an accident or homicide (Chapple, Swift, & Ziebland, 2011). The researchers interviewed 13 men and 27 women, and the sample was predominately white. Interviews were conducted at the location of the participant's choice, and lasted from two to four hours. Participants were instructed to talk about their process of bereavement in whatever way they liked, and a semi-structured interview was employed to discuss how religion was used in coping with the death. The findings from this qualitative analysis found that many individuals, though not all, found religion to be helpful in their bereavement. Specifically, three main themes were found. The first theme was using religious beliefs as a way to make sense of the loss. One participant noted that he was able to frame the death of his brother, who was hit and killed by a truck while crossing the street, in a more positive light; specifically, this participant noted that his brother had terminal cancer and believed he was killed this sudden way to spare the pain of slow suffering. With this positive reframe, the sudden and violent nature of the death became meaningful and made sense as it

eliminated the slow and painful alternative. A second benefit of religion was the comfort of a belief in life after death. Many participants noted that they found comfort in a belief that the deceased were still around or that they would see them again in heaven someday. A final theme that emerged from this study was the practical support that religion provides, such as social support from other churchgoers.

Despite these perceived benefits, a number of participants expressed that religion was not helpful or even harmful to their bereavement. Some participants reported they felt the death was a punishment by God or that they believed that God did not hear their prayers. In addition to these specific negative aspects of religion on bereavement, it is also unclear if nonreligious participants would find similar methods of coping with the death outside of a religious context (i.e., meaning making, helpful beliefs regarding the death, practical supports).

Additional researchers have further posited that religion “can be a source of distress as well as a source of solutions in coping” (Pargament, Smith, Koenig, & Perez, 1998, p. 721). For example, Thompson and Vardaman (1997) conducted a study with 150 participants who were the next-of-kin of an individual killed due to homicide. In this sample, 90% identified as African American, 86% were women, and most participants identified as Baptist (70%). Participants completed measures assessing for distress, posttraumatic stress, and religious coping, which included the Brief Symptom Inventory (Derogatis & Spencer, 1982), the Civilian Mississippi Scale (Keane, Caddell, & Taylor, 1988), and the Religious Coping Activities Scale (Pargament et al., 1990), respectively for each variable. In terms of religious coping, most participants in this sample engaged in spiritually based coping, followed by avoidance, religious support, religious pleading, and religious deeds. The sample did not score high on the discontent subscale, indicating little anger towards their religion or God. A hierarchical regression analysis indicated

that pleading and discontent were both positively associated with higher scores of posttraumatic stress and distress, and the religious deeds subscale was marginally associated with posttraumatic stress and distress. Religious support was the only factor that was significantly negatively associated with stress and distress.

These studies illustrate how a large portion of the population responds to grief, but do little to highlight the experience of those without a religious belief. Bereavement processes for atheists has not been examined up to this point. The following sections will describe the need for further exploration of atheist experiences.

Atheism

The number of nonbelievers is on the rise in the United States, and recent surveys place the number of atheists from four to nine percent of the total population (Zuckerman, 2006). This number is slightly higher than the Jewish and Mormon population of the U.S. – both reported as around two percent – but still significantly lower than the 78% of respondents identifying as Christian (Lugo et al., 2008). When looking at the trend of those who attend weekly religious services, it is clear that these numbers will continue to decline. Young people, aged 18 to 29 years old, were much less likely to attend at least one religious service a week than those who were aged 75 or older (12% and 40%, respectively; Lugo et al., 2008).

One reason for the low numbers of people who openly identify with their nonbelief is the fact that being an atheist, or openly identifying one as such, in the U.S. is a social hazard (Swan & Heesacker, 2012). Several recent studies indicated that atheists were often viewed negatively in America. In one poll, over half of the respondents indicated they would not vote an atheist into public office (Jones, 2007). Another study found “out of a long list of ethnic and cultural minorities, Americans are less willing to accept intermarriage with atheists than with any other

group, and less likely to imagine that atheists share their vision of American society” (Edgell, Gerteis, & Hartmann, 2006, p. 216). In addition to the negative implications from a societal level, those who decide to leave their religion behind might also face significant pressure from family members or friends to stay closeted with their atheist beliefs, or they might wonder if they will be punished by God for turning away from their religion (Brewster & Sawyer, 2014).

In addition to stressors generated by the marginalization of atheists, one of the biggest difficulties atheists reported facing when experiencing the death of a close friend or family member was the lack of nonreligious support structures. For example, a bereaved widow described the following after the unexpected death of her husband when the plane he was flying crashed shortly after takeoff:

I was searching frantically for anything that would help me get through this, but everything I found had to do with God: putting your faith in God, believing that God had some sort of plan. I found *nothing* to help me (Hagerty, 2013).

The last thing that an atheist would want to hear when experiencing the death of a friend or family would be something that does not fit with the way they viewed the loss, or perhaps worse, that they were somehow responsible because the death was part of God’s punishment for their disbelief. This widow provided a poignant statement illustrating how painful it could be to hear well intentioned but unhelpful responses from religious friends: “[He] is in the ground, rotting. I know it sounds horrible to say that, but that is where he is. How is that a better place?” (Hagerty, 2013). Although there are numerous examples of what is not helpful for atheists, there are fewer examples of what atheists actually do to cope with grief.

Nonbelief and bereavement. While religious and spiritual groups are widely studied to better understand how their worldviews impact bereavement processes, nonbelievers (and atheists in particular) are often ignored. This is a trend that is not only found in the bereavement

literature. Although there is a growing number of individuals leaving religion behind, there are few studies that address atheist concerns from a diversity perspective in psychology (D'Andrea & Sprenger, 2007), and those that do are often speculative. For example D'Andrea & Sprenger (2007) propose a series of suggestions for working with atheist and nonspiritual clients in counseling, however, many suggestions appear to be very general (e.g., engage in self-reflection and seek consultation) while others appear to assume uniformity in atheist experience and expectations (e.g., focus on reality rather than meaning making and focus on personal responsibility).

Even fewer studies examine the impact of loss and bereavement specifically with atheist samples. A content analysis of atheist research in the social sciences from 2001 to 2012 found that, while increasing, there were only 100 articles about atheism. Of those 100, 13 focused on existential issues, six focused on end of life concerns, and only one focused on the topic of death, loss, and bereavement (Brewster, et al., 2014).

At this time, research on atheism suggests that atheists seek answers to many of the fundamental existential questions that solely religion is often assumed to provide. Smith-Stoner (2007) created a survey based on themes of atheist beliefs frequently found in the popular literature and peer reviewed journals to assess end of life preferences for atheists. A total of 88 participants completed the survey, and thematic coding was used to analyze the open-ended questions on the survey. Three main themes that were found included a desire to find meaning in their lives, maintain a connection with family and friends, and to continue to experience and enjoy the natural world (Smith-Stoner, 2007). These results will likely surprise those who view atheists as nihilists who are unable to find meaning in a world without God. These end of life desires are also similar to many of the beneficial aspects of religious belief that were examined

by researchers. In fact, a naturalistic method of finding meaning (i.e., believing that nothing exists beyond the natural world) is a common theme for atheist populations, along with finding meaning by gaining better self-understanding and through relationships with others (Hwang, 2008).

There is also evidence that atheist beliefs fulfill many of the same functions as religious beliefs, which have been described as explanation, guidance, consolation, and inspiration (Dawkins, 2006). Wilkinson and Coleman (2010) interviewed 11 people living in the United Kingdom with strong atheist beliefs and eight people with strong religious beliefs who were over 60 years of age. Race was not included in the demographics of this study. In terms of participant selection, the authors note, “the two samples were polarized as far as possible in terms of belief to maximize the likelihood of revealing the most important differences between the two modalities” (p. 341). In the first phase, open-ended interviews were audio-recorded, transcribed, and the researchers identified themes. Participants also completed the Royal Free Hospital’s Beliefs and Values Scale (King et al., 2005) to assess for degree of atheist or religious beliefs and the Hospital Anxiety and Depression scale (HAD-D; Zigmond & Snaith, 1983) to assess for levels of psychological distress.

Transcripts of the interviews were presented in the form of case studies, with the researchers concluding that there was no evidence of difference in effectiveness between religious and atheist belief-based coping (Wilkinson & Coleman, 2010). Additionally, no score for either group on the HAD-D indicated that they experienced significant anxiety or depression or at risk of anxiety or depression. Examples of atheist coping in this study include the belief that one’s legacy will live on based on good deeds done in life and acceptance of the reality of aging and physical decline (Wilkinson & Coleman, 2010).

Another example of effective coping strategies that can be employed by atheists is found in the previous anecdote of the widow who lost her husband in a plane crash. The widow reported that she found relief in holding the funeral in an airport hanger rather than a funeral home or a church, which allowed her to hold a ceremony in a place that she found meaningful. Additionally, instead of a religious text, she reported exploring the self-help section of bookstores in an attempt to find books that would cover what she was experiencing from a secular standpoint. She also began to work on her own book – a grief workbook for atheists (Hagerty, 2013). Online forums and websites created specifically for atheists have also allowed for additional outlets for those who are grieving. These allow atheists to find support from those with similar worldviews, eliminating the worry of having their beliefs invalidated or being told that they are wrong for thinking and feeling the way they do because of their beliefs.

Popular atheist blogger, Greta Christina, suggested that atheists have a unique capacity to cope with bereavement specifically because they do not believe in God or an afterlife, and therefore, are better equipped to confront the harsh realities of death. According to Christina (2014):

...when the subject of death arises, atheists can't evade it. We can't paper it over with a Band-Aid of "Well, we'll see each other on the other side," with no careful thought about whether that other side is remotely plausible, or whether it would be derisible even if it existed. And every day we hear people talk about Heaven or angels or past lives or their loved ones being in a better place and looking down on them right now, we're reminded: "Oh yeah. We don't think that. We think that when we die, we die forever. We don't think our loved ones are with God. We think that they're fucking dead." We have to face death a little bit, every day of our lives (p. 33-34).

Examples of facing the reality of death and accepting the fact that grief can be painful but should not be avoided are commonly found in the narratives of atheists. A member of the website Grief Beyond Belief, a site where grieving atheists can receive support from others

without religious undertones, described the conversation she had with her young son after the death of their cat:

So, when I was sitting in that veterinary clinic with Brendan, I did not tell him that Nero was in a better place, or that we'd play with him again someday. Instead, I hugged him very tightly and told him to cry as much as he needed to. I told him that I knew how much it hurt, and that he needed to feel and acknowledge that hurt until, eventually, the flow of time would dull it. And, together, we allowed ourselves to be overcome by the wave of grief that accompanies loss (Sirls, 2014).

It is clear that people experience grief in a variety of different ways, and that although atheists clearly have specific methods of coping with grief, their experiences have been ignored by researchers up to this point. The following sections will explore how bereavement can lead to psychological growth and changes in one's fundamental view of the world.

Posttraumatic Growth

Studies suggesting that the experience of loss does not necessarily lead one to a period of despair followed by a return to baseline levels of functioning were further supported by a line of research into the topic of posttraumatic growth – the positive psychological changes that can result after loss or trauma (Calhoun & Tedeschi, 1999). However, this is not to say that there is not suffering after the experience of loss. Calhoun, Tedeschi, Cann, and Hanks (2010) stated:

Posttraumatic growth clearly occurs in a context of significant life challenges, with concomitant states of psychological distress and sometimes great suffering. It would be a gross misinterpretation of what we are saying to assume that the focus on growth minimizes the importance of attending to the negative responses for many that accompany the experience of loss (p. 127).

A variety of traumatic experiences can lead to posttraumatic growth, and bereavement is a well-documented factor with the potential to lead to posttraumatic growth (e.g., Edmonds & Hooker, 1992; Hogan, Morse, & Tasón, 1996; Tedeschi & Calhoun, 1996). Posttraumatic growth is a theoretical concept that expands on the ideas espoused in many religious and philosophical texts in that there is potential transformative power and benefit from suffering (Tedeschi &

Calhoun, 1995). That is, one who experiences loss or another traumatic event might not only be resilient, but might also experience increased psychological gains from the loss. The change in functioning is what separates the concept from similar responses to grief, such as resilience and hardiness, since these concepts explain how one responds to the event while posttraumatic growth explores how one changes from the event (Tedeschi & Calhoun, 2004). Tedeschi and Calhoun (2004) also noted that this is not necessarily a gain of spiritual or religious benefits, but is also experienced by nonbelievers and atheists due to “a greater engagement with fundamental existential questions and that engagement in itself may be experienced as growth” (p. 6).

Posttraumatic growth is a concept that describes some of the benefits that one can potentially find after experiencing a traumatic event (Helgeson, Reynolds, & Tomic, 2006). Since posttraumatic growth can exist simultaneously with negative responses to grief (Calhoun et al., 2010), it is important to examine the positive changes that take place that could be missed if one were to simply examine levels of well-being after a traumatic event. That is, even if well-being is relatively low during bereavement, there may still be some reported growth. Even with this being the case, studies have indicated that individuals faced with a significant negative life event can sometimes report higher levels of growth and life satisfaction compared to control groups.

One study highlighting this examined well-being, posttraumatic growth, and benefit finding (described as perceived benefits resulting from the loss) in a sample of 183 breast cancer survivors (Mols, Vingerhoets, Coebergh, & van de Poll-Franse, 2009). All participants were women and 33% were younger than 50-years-old when diagnosed while the rest were between 50 and 69-years old at the time of diagnosis. A multivariate linear regression analysis was used to analyze the presence of posttraumatic growth, benefit finding, and well-being, and results for

the sample were compared with age and gender matched control groups. Results of the analysis indicated that breast cancer survivors reported significantly higher levels of life satisfaction compared to the control group. Additionally, higher levels of posttraumatic growth were positively associated with life satisfaction and benefit finding. In terms of posttraumatic growth, breast cancer survivors reported significant improvements in relationships with others, personal strength, and appreciation of life.

The concept of posttraumatic growth has been criticized by some as reflecting only the illusion of benefit rather than objective, measureable psychological benefits. For example, a study of 122 undergraduates found that scores on the Posttraumatic Growth Inventory (PTGI) were generally unrelated to other scores measuring current psychological functioning, such as meaning in life, satisfaction with life, positive relationships, and overall psychological well-being (Frazier et al., 2009). Other researchers have found posttraumatic growth to be related to deleterious outcomes, such as higher levels of posttraumatic stress, authoritarianism, and support for political violence (Hobfoll et al., 2007). Furthermore, in addition to the questionable outcomes of posttraumatic growth, this might be unnecessary for many due to natural resilience towards potentially traumatic events (Bonanno, 2004; Westphal & Bonanno, 2007). Despite these critiques, the concept of posttraumatic growth continues to be widely studied, and the PTGI continues to be widely used scale to assess psychological outcomes in individuals.

Posttraumatic Growth and bereavement. At this time, much of the research on posttraumatic growth and bereavement focuses on religious populations, specifically, Christians. A content analysis of extant literature conducted by researchers that explored some of the links between posttraumatic growth, religion, and spirituality yielded a total of 11 empirical articles (Shaw, Joseph, & Linley, 2005). The authors searched psycINFO with the keywords

‘posttraumatic growth’, ‘stress-related growth’, positive growth,’ ‘relig*,’ and ‘spirit*.’ The analysis of these studies suggested three primary findings: religion and spirituality are often helpful for those who have experienced a traumatic event, religious and spiritual beliefs can be deepened after a traumatic event, and specific aspects of religious and spiritual belief were more likely to be associated with posttraumatic growth, namely positive religious coping, religious openness, readiness to face existential questions, religious participation, and intrinsic religiousness. After presenting these findings, the authors hypothesize that “spirituality is probably of greater importance to understanding posttraumatic growth” (p. 7), as even the shattering of religious assumptive worldviews can allow a deeper sense of spirituality to take its place (Shaw et al., 2005). Additionally, the authors noted that spirituality and religion seem to be helpful because they allow individuals to find meaning and purpose after experiencing a traumatic event.

Despite the emphasis on religious beliefs and spirituality on posttraumatic growth, there was no mention in this content analysis of how nonreligious or atheist beliefs might impact wellbeing and posttraumatic growth. A similar search with ‘athei*’ in combination with the keywords ‘posttraumatic growth,’ ‘stress-related growth,’ and ‘positive growth’ yields zero results on psycINFO at the time of this study. Another limitation of this study was the conclusion that spirituality is of primary importance for posttraumatic growth. If religion is difficult to define (e.g., Pargament, 1997), the definition for spirituality as even more elusive, as it is not uncommon for atheists and religious individuals to consider themselves to be spiritual.

Since there is significant variability in one’s need for emotional processing, or grief work, after loss (Bonanno, 2004; Stroebe, Schut, Stroebe, 2005), other factors that contribute to posttraumatic growth should be examined. Several factors that have been discussed in

bereavement literature can be described as cognitive (assumptive worldviews), existential (meaning making), and behavioral ways of responding to loss (e.g., coping methods). These three response will be explored in the next section.

Factors Contributing to Grief Outcomes

Assumptive Worlds

One primary process leading to posttraumatic growth is thought to be the shattering of one's assumptive world (Tedeschi & Calhoun, 2004), which is defined as an individual's worldview and way of making sense of themselves in the world (Parkes, 1971). These assumptive worldviews are rooted in schemas, which are cognitive maps that are used to make sense of our environment and our place in it. Hastie (1981) contended that schemas allow us to compare data in a search for congruence or incongruence based on our strongly held beliefs about the world. Additionally, research has shown that schemas are very hard to change, and people actively interpret new information in ways that reinforce their preexisting schemas (Anderson, Lepper, & Ross, 1980; Langer & Abelson, 1974).

Janoff-Bulman (1989) proposed that individuals hold common schemas that include a set of basic assumptions about the world. One major assumption is the benevolence of the world. This concept can be further broken down into the benevolence of the impersonal world (i.e., the world is good) and the benevolence of people (i.e., people are good and caring). Questions people may consider in this assumptive model include "to what extent do good versus bad events occur in the world? How common are good and bad outcomes?" (p. 117).

Another major assumption is the worthiness of self. Included in this assumption are people's beliefs about what could or should happen to themselves or others based on their behaviors. This assumption operates similar to the concept of the belief in a just world (Lerner &

Miller, 1978), which postulated the belief that good things happen to good people and bad things happen to bad people. In describing the thought processes for worthiness of self, Janoff-Bulman (1989) stated that:

We would not know the extent to which these people felt vulnerable unless we also knew the extent to which they believed they were also deserving of good versus bad outcomes. If these people were highly moral, decent individuals, perceptions of vulnerability would be minimized, for despite frequent negative events, their moral character would serve as protection in a just world (p. 119).

Another factor related to one's ideas about self-worth and levels of vulnerability based on just world beliefs is the assumption for controllability (or self-controllability; Janoff-Bulman, 1989). When individuals operate from this assumption, they believe that their vulnerability can be controlled if they take necessary precautions, such as the behaviors deemed necessary in a given situation to avoid a negative outcome. The prevailing belief is that, if the world is controllable, those who take the most precautions will be the ones least vulnerable.

A third factor described by Janoff-Bulman (1989) associated with self-worth beliefs is that of chance, or luck. This assumption accounts for instances where one believes that events are random and other aspects of self are not sufficient to protect from negative events, but consider themselves to be lucky or unlucky. If one feels that they are lucky, they assume that the world is unpredictable while feeling that they will avoid negative outcomes (Janoff-Bulman, 1989).

A final primary assumption is meaningfulness of the world. Janoff-Bulman (1989) described three ways that individuals find meaning in life events: assuming principles of justice, assuming controllability of outcomes, and assuming chance or randomness of events. These principles capture people's beliefs about how positive or negative outcomes are distributed (Janoff-Bulman, 1989). An assumption of justice has similarities to a belief in a just world

(Lerner & Miller, 1978) and worthiness of self, assuming that meaning can be found by the belief that one gets what they deserve, and that there is a natural need to believe in the concept of a just world. The assumption of controllability of outcomes includes the belief that it is people's behavior rather than character that determines what kind and to what degree positive or negative outcomes occur. According to Janoff-Bulman (1989) the concepts of justice and controllability best capture the phenomenon of a sense of meaning in Western society. Individuals assuming chance or randomness would say that there is no way to know how or why events happen to one person instead of another.

Since atheism is defined simply as the lack of belief in God or gods, it is likely that atheist people have a high degree of variability in their beliefs regarding the benevolence of the world, worthiness of self, and meaningfulness of the world in the same way that there would be with any other group. However, there may be some beliefs that are more often endorsed than others, such as the belief that many events are random and uncontrollable. This argument is captured well by the following atheist blogger who wrote about their thoughts on death:

Death is a natural and inevitable part of the cycle of life, and any worldview worth being held should be able to handle it with maturity, without unreasonable fear. There is no doubt that death is less fearful to a theist who believes it to be only the gateway to an eternity of bliss (even if few actually hold this conviction so strongly as to be willing to act on it). For an atheist, however, death is the true end, the cessation of consciousness and being. It is entirely fair to say that such a fate, whether for oneself or for others, is probably the single greatest thing a nonbeliever has to fear – aside, perhaps, from a life of perpetual suffering. If I, as an atheist, can confront it and still endure, then I will know that the worldview I have chosen can withstand the harsh truths of reality (Lee, n.d.).

It may be that atheists have a worldview that does allow for the awareness of the uncertainty and unpredictability of death. If this is the case, atheists might not experience the same levels of psychological distress that would be found in those who do believe that events are not random and controllable.

Assumptive worlds and bereavement. McIntosh (1995) suggested that a religious schema could be helpful in coping with traumatic events because of its ability to increase speed of processing information related to the loss and to assimilate the new information that is congruent with one's current assumptive worldviews. As a result, "the first function may expedite cognitive processing of the event, and the second may facilitate the finding of meaning in the event" (McIntosh, 1995, p. 9). One could infer that if the presence of a religious framework for cognitively processing bereavement is helpful, then the absence is unhelpful. It is clear that atheists would have some set of assumptive worldviews, however, the limited attention given to this group does not allow for a full understanding of what these views are or how they assist with bereavement. A qualitative study examining the nature of atheists' beliefs suggested that this group might be very adept for fitting loss into their preexisting cognitive schemas or adapting their assumptive worldviews to fit the new reality brought on by loss (Mayhew, 2004). Mayhew (2004) conducted semi-structured interviews with a group of students who were asked to explain what spirituality means to them. In addition to the semi-structured interviews, the participants were also instructed to photograph ten images of something that they thought represented spirituality. Mayhew (2004) noted that the atheist and agnostic students often took pictures of bookstores, museums, libraries, and other images that represented "cerebral responses to spirituality," with one participant stating that:

This was difficult because I don't really think about spirituality. I don't consider myself a spiritual person, as I wrote in one of my captions, but I have had experiences that I think are spiritual in nature. When people talk about spirituality, I think that it can be really reassuring and make all sorts of connections but, at the same time, I think that it is a product of the mind. I don't want to say it's not based in reality because it's very real, but at the same time, it's not a part of my life and it's not something that rationally makes sense to me and I think that it is a creation of mind as many things that we do and believe in are (p. 657).

This response and the nature of the photographs that atheist and agnostic students took suggests a method of thinking about the world that can be as helpful as what can be provided by religion. It is likely the case that atheists do think about death and fit experiences of bereavement within a well-developed schema, but what has been studied up to this point has not examined this and what has been studied with religious beliefs do not fit for them.

In order to test this theory of assumptive worlds and responses to loss, Schwartzberg and Janoff-Bulman (1991) examined the basic assumptions held by college students who had recently lost a parent. The assumption of the researchers was that this event would not necessarily be expected (i.e., would not fit into the assumptive world of the bereaved). The authors conducted this study to explore if basic assumptions differ between those who recently experienced a loss and those who have not, and if basic assumptions were related to intensity of grief.

Participants in this study included 21 undergraduate students who had experienced the death of a parent (with the exception of death by murder or suicide) three years prior to the study, and 21 undergraduate students as a matched control group, with 15 women and 6 men in each group; unfortunately, the authors did not provide the racial composition of the sample. No racial demographics were provided for this study. In order to assess participant's beliefs about themselves and the world, the World Assumptions Scale (WAS) (Janoff-Bulman, 1989); I, P, & C Scales for Locus of Control (Levenson, 1973), and Self-Esteem Scale (Rosenberg, 1965) were used. A comparison between the bereaved and control groups found that there was a significant difference in the Meaning scale of the WAS and found that the bereaved group had fewer assumptions about the world being meaningful. Additionally, the bereaved group believed that events were more influenced by chance than the nonbereaved control group. An analysis of the responses within the bereaved group found several significant results. The researchers concluded

that lower assumptions of meaningfulness of the world were associated with a higher intensity of grief responses, higher scores on grief were associated with higher assumptions of randomness and lower assumptions of justice and controllability, and a greater belief of self-worth was associated with lower scores of grief (Schwartzberg & Janoff-Bulman, 1991).

Participants were also interviewed in order to gain a better understanding of how their assumptions were changed. Schwartzberg & Janoff-Bulman (1991) found that only two participants did not mention a change in their worldview after the death of a parent, 45% stated that the loss made them prioritize what was really important in their lives, 35% stated that the death made them feel more somber and have a greater understanding of life, 30% stated that the death changed their assumptions of being immortal or invulnerable, 60% stated that they became more religious while 40% became less religious, and 25% reported that they felt more cynical after the loss. An overwhelming majority of participants (90%) stated that they had asked themselves the question “Why him/her?” after the loss. Furthermore, 50% of these participants stated that they were not able to answer the question of why this loss occurred, and these individuals were found to be grieving more than those who were able to answer this question, regardless of what kind of answer they were able to provide to the “why” question. The researchers concluded that “the subjects who were grieving the most were those for whom the death was the most difficult to make sense of or find meaning in” (Schwartzberg & Janoff-Bulman, 1991, p. 283).

A recent study was conducted to examine which particular assumptions about the world were associated with higher levels of posttraumatic growth (Engelkemeyer & Marwit, 2008). Participants included 111 bereaved parents who had experienced the death of their child by homicide, accident, or illness. Consistent with other studies on bereavement, 97% of the sample

identified as white. The sample was predominantly Christian (52%), followed by Catholic (27%), Jewish (7%), and other (14%). No additional information was provided for what belief systems were included in the “other” category. The Posttraumatic Growth Inventory (PTGI; Tedeschi & Calhoun, 1996) the World Assumptions Scale (WAS; Janoff-Bulman, 1989), and the Revised Grief Experiences Inventory (RGEI; Lev, Munrow, and McCorkle, 1993) were used to measure growth, beliefs, and distress. A correlational analysis suggested several significant relationships. Specifically, those who reported higher levels of posttraumatic growth also reported higher levels of self-worth; benevolence of the impersonal world; luck; and beliefs that they are worthy, good, and moral. There were no significant relations between meaningfulness and benevolence of the world for posttraumatic growth in this study. The data were further analyzed using a hierarchical multiple regression model. WAS subscales accounted for 11% of the variance for PTGI scores, while time since loss accounted for 8% and grief intensity accounted for 4%. Overall, this model accounted for 23% of the variance for PTGI scores.

Although little attention has been paid to atheist populations regarding worldviews, it is reasonable to hypothesize that atheists would not endorse beliefs of a just world, as atheists do not believe in a higher power that controls good versus bad outcomes. It is likely that atheists will vary on their beliefs of benevolence of the world and self-worth, with increases in posttraumatic growth associated with these beliefs in a way similar to previous studies (e.g., Schwartzberg & Janoff-Bulman, 1991).

Meaning Making

If one’s assumptive worldviews provide context for the death of a close friend or family member, emotional distress is still likely, however long-term emotional dysfunction is unlikely. Alternatively, if the loss does not fit within one’s assumptive worldview, specifically if the loss

is unexpected such as an accident or other type of sudden or violent loss, the individual might not be able to fit the loss within their assumptive worldview, leading to distress (Janoff-Bulman, 1989). Indeed, the nature of the loss (anticipated or unanticipated) was determined to be significantly related to posttraumatic growth and psychological distress in previous studies (Davis, Wohl, & Verberg, 2007). In this case, one would need to find a way to reduce the discrepancy between the event and prior worldview in order to reduce feelings of distress, and in some cases, experience posttraumatic growth as a result of this high degree of distress (Tedeschi & Calhoun, 2004).

One method that has received significant attention in recent years is a *meaning making* approach to coping with bereavement. Spiritual and religious beliefs have been theorized to impact how one makes sense of death and bereavement (Cadell, Regehr, & Hemsworth, 2003; Frankl, 1997). There were various methods of operationalizing the concept of meaning making in the literature, including: meaning as a life orientation, the personal significance of meaning, a way to understand causality of events and make attributions, meaning as coping, and meaning as an outcome of bereavement (Park & Folkman, 1997). Neimeyer, Prigerson, and Davies (2002) elaborated on the complex and subjective ways that individuals find and define meaning, stating that:

Although meaning is sometimes framed in terms of interpretations, beliefs, and self-statements, individual consciousness represents merely one site for the construction of meaning, which also resides and arises in language, cultural practices, spiritual traditions, and interpersonal conversations, all of which interact to shape the meaning and mourning for a given individual or group (p. 248)

In order to better capture the subjective nature of meaning making, researchers have conceptualized this process in terms of *benefit finding* and *sense making* (Holland, Currier, & Neimeyer, 2006). Benefit finding has been defined as the “silver lining” to loss, which can

include a greater sense of self, renewed goals, a new appreciation for life, or stronger bonds with others (Davis, Nolen-Hoeksema, & Larson, 1998). Benefit finding is a central tenet to posttraumatic growth, as one is able to grow in one or more areas of life as a direct result of loss or trauma. Sense making has been described as the attributions that one makes about an event in order for it to fit within the assumptions one holds about the world (Davis et al., 1998). For instance, common response towards sudden loss for a religious person is to view the loss as God's will and make sense of the loss by having a belief that God works in mysterious ways (Chappel, Swift, & Ziebland, 2011). As atheists often report a naturalistic worldview (D'Andrea & Springer, 2007), they might see the experience of loss as a natural part of life and similarly make sense of the loss based on the goodness of fit with a prior worldview. That is, previously held beliefs about the randomness of events could lessen the shock that one experiences when a loss does occur. On the other hand, a religious person who believes God rewards those who live decent, moral lives would have difficulty making sense of the fact that their virtuous friend was in a fatal car accident. The same could be said for an atheist who believes in the value of hard work, but finds that their sedentary neighbor has just won the lottery. The conceptualization of sense making is also consistent with Janoff-Bulman's (1989) theory of assumptive worlds.

Without a belief in a higher power, the role of the individual actively seeking meaning is often endorsed. As one blogger noted:

We *make* meaning for ourselves and we can derive joy and enjoyment from what we do because our actions bring us things that we want, things that we need, and things that make us happy. What makes us happy might differ from person to person, but some things seem to hold true for most of us: We crave connection to others, we need to belong, we need to be engaged in purposeful work and play, and we want to *live* and enjoy life as much as possible. The specifics may vary, but we all need these things and we are happiest when we are in rewarding pursuit of these things (Carter, 2014).

Meaning making and bereavement. To examine the hypothesis that there are distinct differences between sense making and benefit finding, and that these meaning making processes can facilitate well-being, Davis and colleagues (1998) interviewed a family member of an individual receiving hospice care in the San Francisco Bay area. They conducted a pre-loss interview and post-loss interviews at the 1st, 6th, 13th, and 18th-month, with a final analysis that included 205 participants. The participants were asked open-ended questions at in each post-loss interview asking about their ability to find meaning in the death. To assess for sense making, participants were asked: “Do you feel that you have been able to make sense of the death?” For benefit finding, participants were asked: “Sometimes people who lose a love one find some positive aspect in the experience. For example, some people feel they learn something about themselves or others. Have you found anything positive in this experience?” (p. 565). Two coders were used to find themes in each interview, and analysis of the interviews found minimal overlap between responses in the sense making and benefit finding questions, suggesting that they are similar but distinct constructs included in the meaning making process.

The prevalence of sense making and benefit finding was also investigated. At 6-months post-loss, the researchers found that 68% had made sense of the loss and 73% reported finding benefit in the loss, 19% did not make sense of the loss and 21% were not able to find benefit in the loss, 10% were ambiguous about making sense of the loss and 6% were ambiguous about finding benefit in the loss, and 2% were uninterested in the idea of making sense of the loss. Interestingly, one’s ability to make sense of the loss and find benefits were not found to be associated with the other. These numbers were compared with the participant’s ability to make sense or find benefit in loss at 13-months post-lost, with similar numbers found. However, the authors note that although the overall numbers were about the same, there was movement

between sense making and benefit finding individuals. That is, 11% had made more sense of the loss at 13-months than 6-months, while 7% had made less sense of the loss or were ambiguous at 13-months compared to 6-months post-loss. Similarly, 13% of participants reported finding more benefits at 13-months post-loss compared to 6-months, while 6% had found less benefit or were ambiguous at 13-months post-loss compared to 6-months (Davis et al., 1998).

Results of the meaning and sense making data, when analyzed with a hierarchical regression analysis, found that individuals who were able to make meaning of the event at an earlier time reported lower levels of distress. The researchers hypothesized that the difficulty with making sense early after the loss is indicative of losses that violate one's assumptive worldview and are more complicated to process. Benefit finding had the opposite effect. Those who reported more benefit at a later time had lower scores of distress. Additionally, the presence of religious beliefs had a small but significant positive relationship with the ability to make sense of the loss when measured at 6-months (Davis et al., 1998).

The relationship between meaning making and posttraumatic growth was examined by Triplett and colleagues (2012). Their study consisted of two separate samples that had experienced a traumatic event in the past two-and-a-half years from undergraduate psychology classes, with 148 in the first sample and 185 in the second sample. The first sample included 53 men and 95 women, and was predominately white (66%). The second sample had similar demographics, with 45 men and 140 women. This sample was also predominately White (69%). The Posttraumatic Growth Inventory (Tedeschi and Calhoun, 1996), Meaning in Life Questionnaire (Steger, Frazier, Oishi, & Kaler, 2006), Satisfaction with Life Scale (Diener, Emmons, Larsen, & Griffin, 1985), and Impact of Events Scale – Revised (Weiss & Marmar, 1997) were used to assess growth, meaning, well-being, and distress, respectively. Participants

were placed in one of four groups based on their level of coming to terms with the loss, which was influenced by their current level of meaning making. This was assessed by having participants chose which of the following prompts best described them: “I felt no need to try to find meaning in or to make sense of the event;” “I tried to find meaning in or to make sense of the event, but I could not and I have given up trying;” “I am still trying to find meaning or to make sense of the event;” or “I believe that I have been able to find meaning in or to make sense of the event” (p. 404).

A one way analysis of variance was used, with resolution as a grouping variable, to analyze difference between groups on variables including posttraumatic growth, meaning in life, and well-being. Results of the analysis indicated that those who indicated that they were able to make sense of the traumatic event endorsed higher levels posttraumatic growth, meaning in life, and well-being. Additionally, those who reported that they were still seeking to make sense of the event reported higher distress, but also more posttraumatic growth compared to those who did not try to make sense of the event or who stopped trying to make sense of the event (Triplett et al., 2012).

Although most of the research examines religious beliefs and meaning making, the anecdotal accounts of atheist meaning making that does exist indicates that some atheists actively seek out meaning in their lives. It is likely that there would be variation in levels of meaning making and benefit finding in an atheist population following bereavement, and that those who endorse higher levels of posttraumatic growth in a way that is similar to other populations (e.g., Triplett et al., 2012).

Coping Strategies

Coping has been defined as the process of responding to a threat, which includes thoughts and behaviors (Folkman & Lazarus, 1980; Lazarus, 1966). Individuals do not respond to threats randomly, but have preferred styles of coping that are consistent with one's personality style (Carver, Scheier, Weintraub, 1989). For example, when facing a similar threat, one person might use denial to cope while another might seek out a solution to the problem. Carver and colleagues (1989) found that although specific ways of coping are dependent on one's personality style, there are predictable dimensions of coping. The following coping styles compose the Brief COPE Inventory (Carver, 1997), which is one of the most commonly used measures to assess for coping styles: *active coping* (e.g., "I've been concentrating my efforts on doing something about the situation I'm in"), *planning* (e.g., "I've been trying to come up with a strategy about what to do"), *positive reframing* (e.g., "I've been looking for something good in what is happening"), *acceptance* (e.g., "I've been accepting the reality of the fact that it has happened"), *humor* (e.g., "I've been making fun of the situation"), *Religion* (e.g., "I've been praying or meditating"), *using emotional support* (e.g., "I've been getting comfort and understanding from someone"), *using instrumental support* (e.g., "I've been trying to get advice or help from other people about what to do"), *self-distraction* (e.g., "I've been turning to work or other activities to take my mind off things"), *denial* (e.g., "I've been refusing to believe that it has happened"), *venting* (e.g., "I've been saying things to let my unpleasant feelings escape"), *substance use* (e.g., "I've been using alcohol or drugs to make myself feel better"), *behavioral disengagement* (e.g., "I've been giving up trying to deal with it"), and *self-blame* (e.g., "I've been criticizing myself").

As atheists do not believe in a God or gods, religious coping would not be part of their coping strategies. However, there are likely coping styles that atheists would prefer that fit with

their specific worldviews. As one atheist blogger noted in a response to someone wondering how atheists deal with the mental and emotional response to death: “Death is simply a part of life, no matter how much we may wish it wasn’t. People die, people are born, and life goes on... and that is something I have to accept” (Libby, 2012). Themes of acceptance and active coping are common in responses to grief, such as the widow who sought out self-help books and ultimately decided to write her own workbook on grieving as an atheist. Additionally, an article published by the Atheist foundation of Australia noted that: “Atheists recognize the basic fact that there is no supernatural being who will do the fixing. Wherever and whenever there is a problem it will be solved by the natural processes or by the effort and ingenuity of people” (Cornish, n.d.).

Coping strategies and bereavement. In an effort to examine how coping strategies influence well-being after bereavement, Rogers and colleagues (2005) conducted a study with individuals who were diagnosed with HIV/AIDS who had also lost a loved one to HIV/AIDS. The sample included 264 participants, with 172 men and 92 women, and was diverse, with 53% identifying as Black, 28% as White, 9% as Hispanic, and 10% representing another racial group. The researchers assessed how coping styles could influence optimism and hopelessness using The Way of Coping Questionnaire (Folkman & Lazarus, 1988), the Beck Hopelessness Scale (Beck & Steer, 1988), and the Life Orientation Test (Scheier & Carver, 1985). Rogers and colleagues (2005) hypothesized that coping strategies would be different for those who were optimistic and those who were hopeless. Using a regression analysis, the researchers found that active coping is positively associated with optimism and negatively associated with hopelessness. Additionally, an avoidant coping style was related to lower levels of optimism and higher levels of hopelessness.

Although the previous study provides support for an active coping style being helpful during times of distress, it does not examine how active coping could contribute to levels of posttraumatic growth. This is an important distinction to make since, as stated earlier, posttraumatic growth is not simply well-being but growth above and beyond what one had experienced prior to the traumatic event. To assess how coping influences posttraumatic growth, Schroevers and Teo (2008) conducted a study with 113 participants Malaysian cancer patients. Of the 113 participants, 66% were women and 34% were men, and most were Chinese (82%), followed by Malay (12%). Most participants described their religious beliefs as Buddhist (48%), followed by 30% identifying as Christian, and 14% as Muslim. Posttraumatic growth was measured using the Posttraumatic Growth Inventory (PTGI; Tedeschi & Calhoun, 1996), while coping was measured with the Brief COPE (Carver, 1997), and psychological distress with the anxiety and depression subscales of the Symptom Check List (Derogatis & Cleary, 1977). Pearson correlations and hierarchical regression analysis were used to assess relationships between posttraumatic growth, depression, and anxiety, as well as to examine how specific coping strategies influenced posttraumatic growth. The pattern of correlations indicated that active coping strategies such as positive reframing, humor, planning, and religion were significantly positively associated with posttraumatic growth. Additionally, coping styles such as behavioral disengagement, self-blame, and denial were not associated with posttraumatic growth. The hierarchical regression analysis indicated that the use of instrumental support, positive reframing, and humor were significant predictors posttraumatic growth.

A study by Wild and Paivio (2004) also supported the benefits of an active coping style for posttraumatic growth. They conducted a study with a sample of 170 women and 23 men who were 76% White. Religious beliefs were not assessed as part of the demographic form in this

study. The researchers used the Posttraumatic Growth Inventory (Tedeschi & Calhoun, 1996) and a modified version of the Brief COPE (Carver, 1997). The modified Brief Cope consisted of an “Active Coping” style and an “Emotional Coping” style. Active coping included positive reinterpretation, use of social support, active coping, religious coping, humor, restraint, acceptance, suppression of competing activities, and planning, while emotional coping consisted of mental disengagement, focus on and venting of emotions, denial, behavioral disengagement, and substance use. A correlation analysis indicated that a higher level of posttraumatic growth was significantly associated with an active coping style. Furthermore, results of a hierarchical regression analysis indicated that active coping predicted posttraumatic growth and accounted for 22% of the variance in scores on the Posttraumatic Growth Inventory.

While there is little empirical data on specific atheist coping styles, atheists are likely to use a variety of active and emotional methods of coping with loss. It is also hypothesized that atheists would see similar benefits from endorsing more active coping styles than emotional coping style, as consistent with prior research on other groups (e.g., Wild & Paivio, 2004).

Purpose of Study

Very little research exists on the experiences of atheist individuals, and the literature on atheist beliefs and bereavement is almost nonexistent. Despite the absence of examining atheist beliefs as a viable worldview, religion and spirituality are often named as effective ways to process grief. To assess the specific qualities of beliefs that are most helpful during bereavement for atheists, several aspects of cognitive, existential, and behavioral coping were examined. Due to the dearth of literature that focuses specifically on atheist populations, this study was exploratory in nature to better understand how belief in God(s), or more specifically, the lack of a belief in God(s), is associated with posttraumatic growth, complicated grief, and psychological

distress. Controlling for age, gender, education, relationship to the deceased (friend or family) and the nature of death (anticipated or unanticipated), the following hypotheses were proposed for this study.

1. Higher levels of self-worth, meaningfulness of the world, and benevolence of the world as measured by the World Assumptions Scale, would be positively related to levels of posttraumatic growth and negatively related to complicated grief and psychological distress.
2. Higher levels of existential coping, as measured by the Meaning in Life Questionnaire, would be positively related to levels of posttraumatic growth and negatively related to complicated grief and psychological distress
3. Higher levels of active coping, as measured by the Brief COPE, would be positively related to levels of posttraumatic growth and negatively related to complicated grief and psychological distress.
4. Higher levels of emotional coping, as measured by the Brief COPE, would be negatively related to levels of posttraumatic growth and positively related to complicated grief and psychological distress.
5. Belief in God(s) would not be related to posttraumatic growth, complicated grief, or psychological distress.

CHAPTER THREE

METHOD

Procedure

Participants were recruited via social media websites (e.g., Facebook, Twitter, LinkedIn, Grief Beyond Belief, Reddit) and snowball sampling techniques. The study was advertised as an examination of how people cope with the loss of a loved one. After clicking on a link that was provided, participants were directed to an online survey, starting with an informed consent and participant's rights page. Participants were required to confirm that they (a) are age 18 years of age or older, (b) live in the U.S., and (c) have experienced the death of a close friend or family member in the past two years.

After confirming that they meet all the eligibility requirements and agreeing to participate, they were allowed to continue to the survey. A total of 928 individuals responded to at least one survey item. A total of 555 participants were removed after missing more than 20% of the questionnaire, excluding the demographics section (Parent, 2013). This survey was shared by several well-known atheist bloggers, resulting in a high number of atheist respondents. The survey was disabled prior to many participants' completion in order to maintain a similar number of individuals in the believer and atheist group, resulting in the large number of participants removed during data cleaning procedures. Each measure included one validity check item (e.g., please select "Agree" for this question) to reduce random responding. Another 20 participants were removed after missing more than one validity check item. Participants were also removed if they indicated that the death was not that of a friend or family member, resulting in 16 removed participants. Finally, groups were composed of believers [those indicating a belief in God(s)] and atheists [those indicating that they did not believe in God(s)]. A total of 38 participants indicated

that they were unsure about their belief in God, and were not included in this analysis. These data cleaning procedures resulted in a total of 299 participants (117 believers and 182 atheists). An analysis of Little's Missing Completely at Random was nonsignificant ($p = .21$), indicating that there are no patterns in the missing data (Li, 2013).

Participants

Believers

There were 117 participants in the “believer” group, which included participants who endorsed a belief in God on the demographic questionnaire. Believers ranged in age from 22 to 78 years old ($M = 49.24$, $SD = 11.52$, $Mdn = 50.50$). Throughout this section, percentages might not total 100% due to small amounts (approximately 1-4%) of item-level missing data.

Approximately 90% of the sample identified as White, 3%, as Latina/o or Hispanic, 2% as Asian-American, 1% as Black/African American, 1% Native American, 1% Multiracial, and 1% as a race not listed (e.g., “human”). About 92% identified as a woman, 6% as a man, and 1% as gender nonconforming (e.g., “androgynous” or “gender queer”). About 91% identified as heterosexual, 4% as bisexual, and 2% as mostly heterosexual. The sample was highly educated, with approximately 25% having a 4-year college degree as their highest level of education attained, 26% with some college, 19% with a 2-year degree, 13% with a high school diploma, 10% with a postgraduate degree, 6% with some postgraduate education, and 2% with a high school degree or less. In terms of annual income, about 31% earned between \$40,000-\$60,000; 25% earned \$20,000-\$40,000; 15% earned \$60,000-\$80,000; 12% earned \$100,000 or above; 8% earned \$80,000-\$100,000; and 7% earned \$20,000 or less. About 58% percent were employed full-time, 15% retired, 14% part-time, and 13% unemployed. Approximately 56% lived in a suburban environment, 32% in a rural environment, and 11% in an urban environment.

In terms of social class, about 45% described themselves as upper middle class, 26% as lower middle class, 24% as working class, 2% poor/low income, and 1% as upper class/wealthy. About 35% identified their political beliefs as moderate, 33% as conservative, 24% as liberal, and 6% as a belief not listed (e.g., “libertarian,” “apolitical,” etc.). In terms of religiosity, about 56% were religious, 42% were spiritual but not religious, and 2% were not religious. Participants were located nationwide, with 32 states represented. Most came from Michigan (12%), followed by Texas (7%), Pennsylvania (6%), Ohio (6%), and California (5%). About 88% experienced the death of a family member, 3% of a friend, and 9% of other (e.g., “like a son” or “fiancé”). About 74% described the death as unanticipated, and 26% as anticipated.

Atheists

The “atheist” group consisted of participants who indicated that they did not believe in God in the demographic questionnaire, and included 182 participants. Ages ranged from 18 to 71 years old ($M = 39.84$, $SD = 12.15$, $Mdn = 39.5$). Approximately 94% of the sample identified as White, 2% Latina/o or Hispanic, 1% as Asian-American, 1% as Native American, 1% as multiracial, and 2% as a race not listed (e.g., “human”). About 79% identified as a woman, 20% as a man, 1% as gender nonconforming (e.g., “androgynous” or “gender queer”) and 1% as a gender not listed (e.g., “gender does not exist”). About 71% identified as heterosexual, 12% as bisexual, 10% as mostly heterosexual, 4% as gay/lesbian, 1% as mostly gay/lesbian, and 3% as a sexual orientation not listed (e.g., pansexual). The sample was also highly educated, with approximately 28% having some college as their highest level of education attained, 21% with a postgraduate degree, 18% with a 4-year degree, 12% with some postgraduate education, 12% with a 2-year college degree, and 4% with a high school degree or less. In terms of annual income, about 23% earned \$20,000-\$40,000; 20% earned between \$40,000-\$60,000; 19% earned

\$20,000 or less; 12% earned \$60,000-\$80,000; 13% earned \$100,000 or above; and 12% earned \$80,000-\$100,000. About 54% percent were employed full-time, 20% unemployed, 17% part-time, and 8% were retired. Approximately 58% lived in a suburban environment, 23% in a rural environment, and 19% in an urban environment. One atheist (1%) identified as religious, 6% identified as spiritual but not religious, and 94% did not identify with a religion or spiritual belief. Buddhism was the sole religious belief noted (100%). In terms of social class, about 36% described themselves as upper middle class, 32% as lower middle class, 21% as working class, 8% poor/low income, and 3% as upper class/wealthy. In contrast to the believer group, about 75% identified their political beliefs as liberal, 15% as moderate, 3% as conservative, and 10% as a belief not listed (e.g., libertarian, apolitical, etc.). There were 36 states represented by this sample, with most coming from California (10%), followed by Texas (7%), Maryland (6%), Pennsylvania (6%), and Illinois (5%). About 78% experienced the recent loss of a family member, 20% of a friend, and 2% of other (e.g., fiancé). About 58% described the death as unanticipated, and 42% as anticipated (also see figure 1).

Instruments

Cognitive coping was measured with the World Assumption Scale (WAS; Janoff-Bulman, 1989). The World Assumption Scale is a 32-item scale that assesses one's perception of the world. The WAS uses a Likert-type scale for items (e.g., "people are naturally friendly and unkind" and "I am basically a lucky person") ranging from 1 (strongly disagree) to 6 (strongly agree). There are eight subscales: Benevolence of the World, Benevolence of People, Justice, Controllability, Randomness, Self-Worth, Self-Controllability, and Luck. These eight subscales can then be used to create three primary subscales: Benevolence of the World (including Benevolence of World and Benevolence of People), Meaningfulness of the World (including Justice, Controllability, and Randomness), and Worthiness of Self (including Self-Worth, Self-Controllability, and Luck). The three primary scales will be used for this study. Appropriate items are reverse coded and subscale scores are summed to generate totals. Originally a 64-item scale, an analysis with 2,254 subjects found that the scale could be reduced to 32 items while maintaining reliabilities between .67 and .78 (Janoff-Bulman, 1989).

The WAS has been used to assess beliefs by individuals experiencing a variety of traumatic events, such as bereavement in parents, bereavement in college students, and those with a recent cancer diagnosis (Carboon, Anderson, Pollard, Szer, & Seymour, 2005; Engelkemeyer & Marwit, 2008; Schwartzberg & Janoff-Bulman, 1991). In assessing validity, the WAS is positively correlated to other measures of belief, such as belief in a just world and self-esteem (Janoff-Bulman, 1989). Although the WAS items have not been used with an atheist sample, their Cronbach's alphas with a religious sample are as follows: Benevolence of the World = .75, Meaningfulness of the World = .82, and Worthiness of Self = .79 (Avants, Marcotte, Arnold, & Margolin, 2003). Cronbach's alpha levels for the believer sample in this

study were .87 for Benevolence of the World, .63 for meaningfulness of the World, and .82 for Worthiness of Self. For the atheist sample, Cronbach's alpha levels were .90 for Benevolence of the World, .63 for meaningfulness of the World, and .82 for Worthiness of Self.

Existential coping was measured using the Meaning in Life Questionnaire (MLQ; Steger, Frazier, Oishi, & Kaler, 2006). The MLQ is a 10-item measure designed to assess attitudes towards one's meaning in life. Participants rated items on a Likert-type scale ranging from 1 (Absolutely True) to 7 (Absolutely untrue). There are two subscales that make up the MLQ. The first subscale measures *Presence of Meaning*, and is composed of five items (e.g., "I understand my life's meaning"). The second subscale measures *Search for Meaning*, and is also composed of five items (e.g., "I am looking for something that makes my life seem meaningful"). Items are reverse coded as necessary and summed to generate total scores for subscales, with higher scores indicating greater presence of meaning or search for meaning. In terms of validity, the Presence of Meaning and Search for Meaning subscales has been positively associated with other well-being measures, and negatively associated with measures of depression (Steger et al., 2006). While no studies have used the MLQ specifically with an atheist sample, a study of individuals exposed to a traumatic event reported internal consistency reliabilities for Presence of Meaning items as .85 and .87 across two samples; for Search for Meaning items in the same two samples, Cronbach's alpha levels were considerably lower at .53 and .52 (Triplett et al., 2012). Cronbach's alphas for the believer sample in this study were .88 for Presence of Meaning and .85 for Search for Meaning. For the atheist sample, Cronbach's alpha levels were .90 for Presence of Meaning and .93 for Search for Meaning.

Behavioral coping was measured with the Brief COPE (Carver, 1997). The Brief COPE is a 28-item measure designed to assess how people cope with stress and stressful events. The

Brief COPE uses a Likert-type scale from 1 (I usually don't do this at all) to 4 (I usually do this a lot). There are 14 subscales: *Active coping* (e.g., "I've been concentrating my efforts on doing something about the situation I'm in"), *Planning* (e.g., "I've been trying to come up with a strategy about what to do"), *Positive reframing* (e.g., "I've been looking for something good in what is happening"), *Acceptance* (e.g., "I've been accepting the reality of the fact that it has happened"), *Humor* (e.g., "I've been making fun of the situation"), *Religion* (e.g., "I've been praying or meditating"), *Using emotional support* (e.g., "I've been getting comfort and understanding from someone"), *Using instrumental support* (e.g., "I've been trying to get advice or help from other people about what to do"), *Self-distraction* (e.g., "I've been turning to work or other activities to take my mind off things"), *Denial* (e.g., "I've been refusing to believe that it has happened"), *Venting* (e.g., "I've been saying things to let my unpleasant feelings escape"), *Substance use* (e.g., "I've been using alcohol or drugs to make myself feel better"), *Behavioral disengagement* (e.g., "I've been giving up trying to deal with it"), and *Self-Blame* (e.g., "I've been criticizing myself").

The full version of the COPE (Carver, Scheier, & Weintraub, 1989) has been modified to consist of two primary scales: an active coping scale and an emotional coping scale. Active coping includes: positive reinterpretation, use of social support, active coping, religious coping, humor, restraint, acceptance, suppression of competing activities, and planning. Emotional coping consists of: mental disengagement, focus on and venting of emotions, denial, behavioral disengagement, and substance use (Wild & Paivio, 2004). In terms of validity, effective coping styles in the Brief COPE have been correlated negatively with distress in a variety of health-related studies (Carver, 1997). In terms of internal consistency reliability, Cronbach's alphas for all subscale items range from .57-.90 (Carver, 1997). Cronbach's alphas for subscale items

ranged from .80-.88 in a study examining coping styles in college students after a traumatic event (Schnider, Elhai, & Gray, 2007). For the believer sample in this study, Cronbach's alphas were .86 for Active Coping and .74 for Emotional Coping. For the atheist sample, alpha levels were .81 for Active Coping and .84 for Emotional Coping.

Posttraumatic growth was measured with the Posttraumatic Growth Inventory (PTGI; Tedeschi & Calhoun, 1996). The PTGI is a 21-item scale that measures the degree of positive changes after a significant stressful event or crisis. The PTGI uses a Likert-type scale ranging from 0 (I did not experience this change as a result of my crisis) to 5 (I experienced this change to a very great degree as a result of my crisis). There are five individual subscales assessed by the PTGI. These include: *Relating to others* (e.g., "Knowing that I can count on people in times of trouble"); *New possibilities* (e.g., "I developed new interests"); *Personal strength* (e.g., "Knowing I can handle difficulties"); *Spiritual change* ("I have a stronger religious faith"); and *Appreciation of life* ("Appreciating each day"). Scores for each subscale are averaged, and higher scores indicate higher levels of posttraumatic growth. No items require reverse coding. The PTGI has been modified to fit specific samples in previous studies, and will be modified for an atheist population in this study (e.g., 0 = *I did not experience a change as a result of the death* to 5 = *I experience this change to a very great degree as a result of the death*). In assessing validity, the PTGI is positively correlated with optimism, religiosity, and all other major areas of personality except for neuroticism (Tedeschi & Calhoun, 1996). Although there is currently no research utilizing the PTGI with an atheist population, the PTGI items yielded a Cronbach's alpha level of .91 with a religious sample, indicating strong reliability (Proffitt, Cann, Calhoun, & Tedeschi, 2007). For the believer sample in this study, Cronbach's alpha was .90. For the atheist sample, the alpha level was .92.

Complicated grief was measured with the Inventory of Complicated Grief (ICG; Prigerson et al., 1995). The ICG is a 19-item scale that measures the level of functional impairments experienced by the bereaved that, in this study, is specific to the death of a close friend or family member. The ICG uses a Likert-type scale that ranges from 0 (never) to 4 (always). Items are summed to generate a total score, with higher scores indicating higher levels of distress (e.g., “I feel myself longing for the person who died”). No items require reverse coding. The ICG is strongly positively correlated with the Beck Depression Inventory, the Texas Revised Inventory of Grief, and the Grief Measurement Scale, indicating the ICG’s validity as a scale for grief and distress (Prigerson et al, 1995). The ICG has not been used on atheist samples, but has been used frequently with bereaved samples, yielding a Cronbach’s alpha of .92 in a study of widows and widowers (Ott, 2003). Alpha levels for this same were .90 and .94 for the believer and atheist sample, respectively.

Psychological distress was measured with the 25-item version of the Hopkins Symptom Checklist (HSCL-25). The HSCL-25 includes 10 items assessing symptoms of anxiety (e.g., “trembling”) and 15 items assessing symptoms of depression (e.g., “feeling blue”). A total score is calculated from an average of all 25 items. A Likert-type scale is used, ranging from 1 (not at all) to 4 (extremely). No items are reverse scored. The HSCL-25 has been used alongside other methods for assessing psychological distress, such as the Structured Clinical Interview for the DSM-III-R, and has been recommended as a screening tool for psychiatric disorders (Veijola et al., 2003). Consistent with other measures, the HSCL-25 has not been used with atheist samples, but has been used to assess levels of psychological distress in bereaved samples, yielding a Chronbach’s alpha of .96 in a study of bereaved parents (Cacciatore, Lacasse, Lietz, &

McPherson, 2014). Alpha levels for this sample were .93 and .96 for the believer and atheist sample, respectively.

Demographics were assessed by the use of a questionnaire (Appendix G). Participants were asked to identify their age, race, gender, sexual orientation, level of education, annual income, employment status, city and state of current residence, social class, and political beliefs. Participants were also asked to identify their current or prior religious belief (if applicable), whether the recent death was of a friend or family member, and if the death was expected or unexpected.

CHAPTER FOUR

RESULTS

Analysis of Believer and Atheist Sample

An examination of the skewness and kurtosis for each variable yielded satisfactory univariate normality (i.e., skewness < 3 , kurtosis < 10 ; Weston & Gore, 2006). Multicollinearity indexes indicated that multicollinearity was not a problem for steps one through three of each regression model (i.e., variance inflation factors < 10 ; tolerance values $> .20$; Field, 2013). Step four of each regression analysis, where interaction effects were added, yielded elevated multicollinearity indexes (i.e., variance inflation factors > 10 ; tolerance values $< .20$). Researchers have noted that elevated multicollinearity indexes are commonly produced in interaction effects, and can be ignored for analysis without compromising the overall interpretation (Disatnik & Sivan, 2014).

Correlates of Variables

Descriptive statistics and bivariate correlations among study variables are shown in Table 1.1 and 1.2. Cohen's (1992) guidelines were used to interpret small ($r = .10$), medium ($r = .30$), and large ($r = .50$) effect sizes. Benevolence of the world, presence of meaning, search for meaning, and active coping, and emotional coping were each correlated positively with posttraumatic growth, while meaningfulness of the world and worthiness of self were unrelated to posttraumatic growth. Emotional coping and search for meaning were correlated positively with complicated grief, while benevolence of the world, meaningfulness of the world, worthiness of self, and presence of meaning were correlated negatively with complicated grief, and active coping was unrelated to complicated grief. Search for meaning and emotional coping were positively correlated with psychological distress, while benevolence of the world,

meaningfulness of the world, worthiness of self, and presence of meaning, were negatively correlated, and presence of meaning and active coping were unrelated to psychological distress.

Table 1.1.

Bivariate Correlations of Demographic Variables for Believers and Atheists

Variables	Age	Gender	Education	Relationship	Nature of Death	Belief in God(s) Y/N
Benevolence of World	.12*	.12*	.13*	.05	-.07	-.06
Meaningfulness of World	-.21***	-.11	-.06	-.14*	-.15*	.25***
Worthiness of Self	.07	-.07	.08	-.04	-.21***	.04
Presence of Meaning	-.02	.02	.14*	.01	-.15**	.08
Search for Meaning	.04	.12*	.07	.17**	.06	-.37***
Active Coping	.03	.17**	.02	.11	-.02	-.22***
Emotional Coping	-.00	.14*	.00	.07	.33***	-.20***
Posttraumatic Growth	.36	.17**	-.07	.16**	.08	-.33***
Complicated Grief	.11	.25***	-.08	.17**	.40***	-.48***
Psychological Distress	.04	.18**	-.09	.13*	.32***	-.33***

Note. * $p < .05$, ** $p < .01$, *** $p < .001$, $N = 299$. Gender (0 = Other than Woman, 1 = Woman), Relationship (0 = Close Friend, 1 = Family), Nature of Death (0 = Anticipated, 1 = Unanticipated), Belief in God(s) (0 = Yes, 1 = No).

Table 1.2.

Bivariate Correlations and Descriptive of Variables of Interest for Believers and Atheists

Variables	1	2	3	4	5	6	7	8	9	10
1. Benevolence of World	--									
2. Meaningfulness of World	.07	--								
3. Worthiness of Self	.50***	.25***	--							
4. Presence of Meaning	.43***	.11	.49***	--						
5. Search for Meaning	.20***	-.16**	.01	.11	--					
6. Active Coping	.32***	-.14**	.23***	.26***	.33***	--				
7. Emotional Coping	-.10	-.12*	-.43***	-.27***	.15***	.12*	--			
8. Posttraumatic Growth	.22***	-.09	.11	.18**	.31***	.62***	.23***	--		
9. Complicated Grief	-.14*	-.22***	-.41***	-.30***	.22***	.08	.74***	.27***	--	
10. Psychological Distress	-.23***	-.17**	-.51***	-.43***	.20**	.06	.70***	.17***	.78***	--
Alpha	.89	.63	.77	.89	.92	.82	.81	.92	.94	.95
Mean	4.26	3.16	4.06	4.51	4.40	3.89	1.90	2.90	2.41	2.02
Std. Deviation	.81	.55	.72	1.39	1.24	.50	.54	.99	.88	.64
Range	1-6	1-6	1-6	1-7	1-7	1-4	1-4	1-6	1-5	1-4

Note. * $p < .05$, ** $p < .01$, *** $p < .001$, $N = 299$.

Multivariate Analysis of Variance

A multivariate analysis of variance (MANOVA) was used to assess differences in demographic variables between the believer and atheist sample. Researchers have noted that men, older individuals, and individuals with higher levels of education typically respond to grief with higher levels of resilience, and the impact of race is uncertain at this point (Bonanno et al., 2007; Bonanno et al., 2008). Thus, the demographic variables of age, education, race, and gender, along with nature of death (i.e., expected or unexpected), and relationship to the deceased (i.e., friend or family) were used as covariates, while belief in God (i.e., yes or no) was used as the dependent variable. All categorical variables were coded as dichotomous variables for the following analyses (e.g., 0 = anticipated death, 1 = unanticipated death; 0 = gender other than woman, 1 = woman, 0 = belief in God(s), 1 = atheist). Box's test of equality of covariance matrices was significant, suggesting that covariate matrices of dependent variables were not equal among groups. As a result, Pillai's Trace was used to assess significance (Meyers, Gamst, & Guarino, 2006). In order to reduce the chance of a type I error, a Bonferroni adjusted alpha level was created by dividing 0.05 by the number of dependent variables, resulting in a Bonferroni adjusted alpha level of .008 (Brace, Kemp, & Snelgar, 2009).

Results of the analysis suggested that there were significant differences in demographic variables between the atheist and believer samples $F(6,290) = 16.75, p < .001$; Pillai's Trace = .26; partial $\eta^2 = .26$. Analysis of each individual variable indicated that the groups differed in age, $F(1,295) = 44.25, p < .001$, partial $\eta^2 = .13$; education $F(1,295) = 11.62, p = .001$, partial $\eta^2 = .04$; gender $F(1,295) = 15.83, p < .001$, partial $\eta^2 = .05$; the nature of the death, $F(1,295) = 7.82, p = .006$, partial $\eta^2 = .03$; and the relationship to the deceased, $F(1,295) = 17.70, p < .001$, partial $\eta^2 = .06$.

Hierarchical Regression Analysis with Control Variables

Regression can be used to examine individual and collective impacts on a criterion variable by one or more independent variables (Wampold & Freund, 1987). Hierarchical regression can be used when researchers have a rationale for choosing the order in which variables are entered (Wampold & Freund, 1987). Thus, three hierarchical regression analyses were conducted in order to examine the specific links between the proposed predictor and criterion variables, with demographic variables controlled. Additionally, the moderating role of belief or nonbelief in God(s) was examined. This resulted in a four-step hierarchical regression, with demographic controls in the first step, followed by belief in the second (i.e., believer or atheist), predictor variables in the third step, and interaction effects of predictors and belief in the fourth step.

Predictors of Posttraumatic Growth

Results of the hierarchical regression analysis indicated that demographic variables entered in step one contributed significantly to the regression model, $R^2 = .06$, $F[5, 292] = 3.59$, $p = .004$. The demographic variables of gender and relationship to the deceased were significant, in that identification as a woman and experiencing the death of a family member, were more positively related to posttraumatic growth. Belief in God (yes or no) was entered in step two, and was significant in explaining more of the variance in posttraumatic growth beyond step one, $\Delta R^2 = .07$, $F[1, 291]$ of change = 24.48, $p < .001$. Contrary to expectations, belief in God(s) was significantly and positively related to posttraumatic growth. The addition of the predictors in step 3 was also significant in explaining more of the variance in posttraumatic growth, $\Delta R^2 = .33$, $F[7, 284]$ of change = 24.87, $p < .001$. As expected, a higher level of active coping was a significant predictor of posttraumatic growth. However, contrary to expectations, higher levels of

emotional coping were also related to posttraumatic growth, and benevolence of the world, meaningfulness of the world, worthiness of self, presence of meaning, and search for meaning were unrelated to posttraumatic growth. Interaction effects added in step four were not significant in explaining more of the variance in the model, $\Delta R^2 = .02$, $F[7,277]$ of change = 1.31, $p = .25$ (see Table 2.1). Search for meaning was significantly moderated by belief, suggesting that higher levels of search for meaning were positively related to posttraumatic growth for those who believe in God(s) (see Figure 1.1).

Table 2.1.

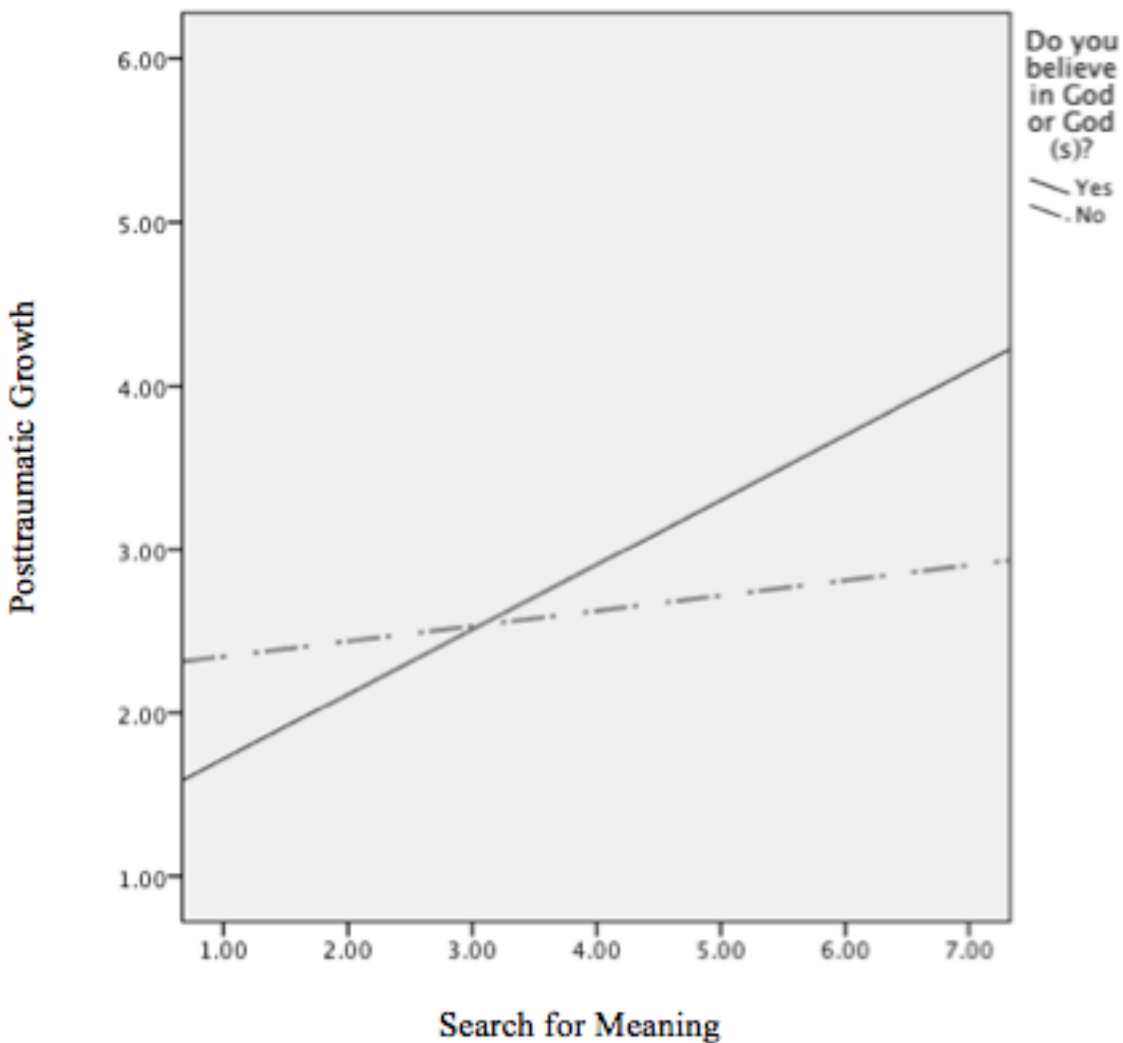
Hierarchical Regression Model Predicting Outcomes of Posttraumatic Growth

$R^2 = .48$,
 $f^2 = 1.08$

Step and Variable	<i>B</i>	<i>SE B</i>	β	<i>t</i>	R^2	ΔR^2	<i>F</i>	ΔF	<i>df</i>
Step 1					.06	.06	3.59	3.59**	5,292
Age	.00	.01	.01	.09					
Gender	.41	.16	.15	2.58**					
Education	-.03	.04	-.05	-.95					
Friend or Family	.39	.17	.14	2.33*					
Nature of Death	.18	.12	.09	1.53					
Step 2					.13	.07	7.31	24.48***	1,291
Belief in God	-.64	.13	-.31	-4.95***					
Step 3					.46	.33	24.87	18.71***	7,284
BoW	.01	.07	.00	.07					
MoW	.06	.09	.04	.73					
WoS	.04	.09	.03	.46					
Presence	.06	.04	.09	1.61					
Search	.03	.04	.04	.82					
Active Coping	1.05	.10	.53	10.26***					
Emotional Coping	.28	.10	.15	2.84**					
Step 4					.48	.02	12.71	1.31	7,277
Belief X BoW	-.12	.14	-.26	-.82					
Belief X MoW	.32	.18	.53	1.75					
Belief X WoS	-.42	.18	-.09	-.24					
Belief X Presence	.07	.08	.17	.83					
Belief X Search	-.20	.09	-.45	-2.20*					
Belief X Active	.24	.22	.47	1.13					
Belief X Emotional	.03	.14	.03	.14					

Note. * $p < .05$, ** $p < .01$, *** $p < .001$, $N = 299$. BoW = Benevolence of World, MoW = Meaningfulness of World, WoS = Worthiness of Self.

Figure 1.1. Belief X Search for Meaning Interaction for Posttraumatic Growth



Predictors of Complicated Grief

Results of the hierarchical regression analysis indicated that demographic variables entered in step one contributed significantly to the regression model, $R^2 = .24$, $F[5, 292] = 20.12$, $p < .001$. The demographic variables of gender, nature of death, and relationship to the deceased were found to be significant, with women, those experiencing the death of a family member, and unanticipated death being positively related to complicated grief. Belief was entered in step two, and was significant in explaining more of the variance in complicated grief beyond step one, ΔR^2

= .11, $F[1, 291]$ of change = 52.34, $p < .001$. Unexpectedly, belief in God(s) was significantly and positively related to complicated grief. The addition of the predictors in step three was also significant in explaining more of the variance in complicated grief, $\Delta R^2 = .33$, $F[7, 284]$ of change = 45.80, $p < .001$. As expected, emotional coping was significantly and positively related to complicated grief. Contrary to expectations, benevolence of the world, meaningfulness of the world, worthiness of self, presence of meaning, search for meaning, and active coping were unrelated to complicated grief. Interaction effects added in step four were not significant in explaining more of the variance in the model, $\Delta R^2 = .01$, $F[7, 277]$ of change = .86, $p = .54$ (see Table 2.2). Although the addition of these interactions did not significantly add to the overall variance, there was a significant interaction between belief and emotional coping, suggesting that suggesting that at high levels of emotional coping, atheists and believers have more comparable levels of complicated grief than at low levels of emotional coping (see Figure 1.2).

Table 2.2.

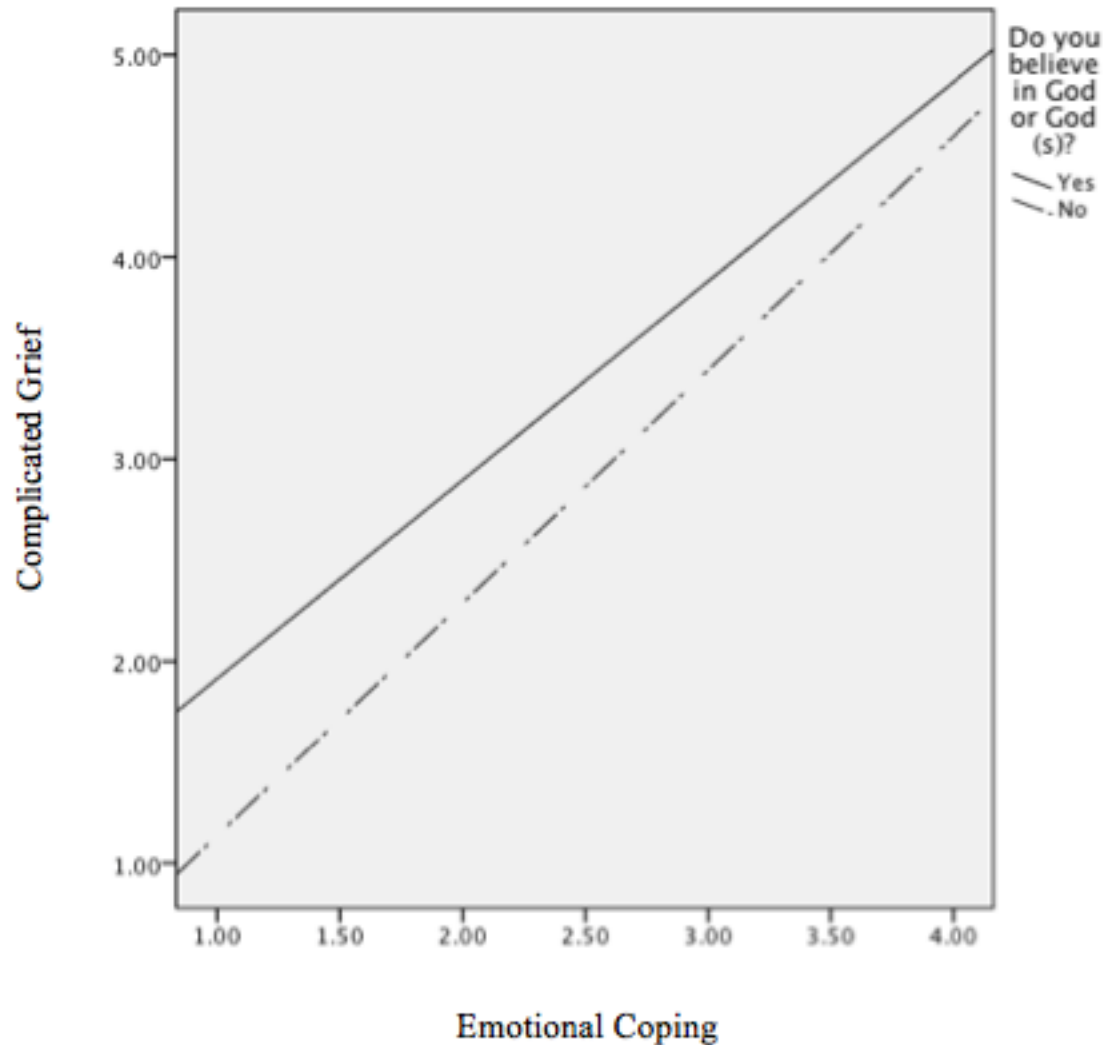
Hierarchical Regression Model Predicting Outcomes of Complicated Grief

$R^2 = .71$,
 $f^2 = .41$

Step and Variable	<i>B</i>	<i>SE B</i>	β	<i>t</i>	R^2	ΔR^2	<i>F</i>	ΔF	<i>df</i>
Step 1					.26	.26	20.12	20.12***	5,292
Age	.00	.00	.05	.93					
Gender	.53	.12	.22	4.27***					
Education	-.27	.03	-.05	-.92					
Friend or Family	.44	.13	.18	3.35**					
Nature of Death	.74	.09	.41	7.99***					
Step 2					.37	.11	28.44	52.34***	1,291
Belief in God	-.70	.10	-.39	-7.23***					
Step 3					.70	.33	51.93	45.80***	7,284
BoW	-.06	.04	-.06	-1.41					
MoW	-.04	.06	-.02	-.62					
WoS	-.05	.06	-.04	-.84					
Presence	-.03	.03	-.04	-1.09					
Search	.01	.03	.02	.47					
Active	-.08	.07	-.05	-1.17					
Coping									
Emotional	.95	.07	.58	14.65***					
Step 4					.71	.01	33.94	.86	7,277
Belief X BoW	.03	.10	.08	.35					
Belief X MoW	.04	.12	.08	.36					
Belief X WoS	.01	.12	.03	.09					
Belief X Presence	.06	.05	.17	1.12					
Belief X Search	-.03	.06	-.06	-.39					
Belief X Active	-.06	.14	-.13	-.43					
Belief X Emotional	.30	.14	.34	2.16*					

Note. * $p < .05$, ** $p < .01$, *** $p < .001$, $N = 299$. BoW = Benevolence of World, MoW = Meaningfulness of World, WoS = Worthiness of Self.

Figure 1.2. Belief X Emotional Coping Interaction for Complicated Grief



Predictors of Psychological Distress

Results of the hierarchical regression analysis indicated that demographic variables entered in step one contributed significantly to the regression model, $R^2 = .16$, $F[5, 292] = 10.95$, $p < .001$. The demographic variables of gender, nature of death, and relationship to the deceased were found to be significant, with women, those experiencing the death of a family member, and unanticipated death being positively related to psychological distress. Belief was entered in step

two, and was significant in explaining more of the variance in psychological distress beyond step one, $\Delta R^2 = .05$, $F[1, 291]$ of change = 18.31, $p < .001$. Unexpectedly, belief in God(s) was significantly and positively related to psychological distress. The addition of the predictors in step 3 was also significant in explaining more of the variance in psychological distress, $\Delta R^2 = .42$, $F[7, 284]$ of change = 44.88, $p < .001$. As expected, worthiness of self and presence of meaning were significantly and negatively related to psychological distress, while emotional coping was related positively with psychological distress. Contrary to expectations, benevolence of world, meaningfulness of world, search for meaning, and active coping were not related to psychological distress. Interaction effects added in step four were not significant in explaining more of the variance in the model, $\Delta R^2 = .01$, $F[7, 277]$ of change = 1.36, $p = .22$. No interactions were significant (see Table 2.3).

Table 2.3.

Hierarchical Regression Model Predicting Outcomes of Psychological Distress

$R^2 = .64$,
 $f^2 = .56$

Step and Variable	<i>B</i>	<i>SE B</i>	β	<i>t</i>	R^2	ΔR^2	<i>F</i>	ΔF	<i>df</i>
Step 1					.16	.16	10.95	10.95***	5,292
Age	-.00	.00	-.01	-.21					
Gender	.29	.10	.16	2.95***					
Education	-.03	.02	-.07	-1.30					
Friend or Family	.26	.10	.14	2.50**					
Nature of Death	.44	.07	.33	6.03***					
Step 2					.21	.05	12.72	18.31***	1,291
Belief in God	-.34	.08	-.26	-4.28***					
Step 3					.62	.42	36.23	44.88***	7,284
BoW	-.05	.04	-.06	-1.37					
MoW	-.03	.05	.03	.66					
WoS	-.14	.05	-.16	-3.09**					
Presence	-.08	.02	-.18	-3.98***					
Search	.04	.02	.08	1.87					
Active	.05	.06	.04	.85					
Coping									
Emotional	.60	.05	.51	11.29***					
Step 4					.64	.01	24.24	1.36	7,277
Belief X BoW	-.15	.08	-.52	-1.96					
Belief X MoW	-.16	.10	-.41	-.165					
Belief X WoS	.18	.10	.59	1.91					
Belief X Presence	.03	.04	.10	.59					
Belief X Search	.02	.05	.08	.46					
Belief X Active	-.09	.12	-.28	-.81					
Belief X Emotional	-.15	.08	-.52	-1.96					

Note. * $p < .05$, ** $p < .01$, *** $p < .001$, $N = 299$. BoW = Benevolence of World, MoW = Meaningfulness of World, WoS = Worthiness of Self.

Hierarchical Regression Analysis with Matched Groups

The results of another set of three hierarchical regression analyses were examined after taking steps to create matched groups. In the following analyses, belief was entered in step one, followed by predictors in step two, and interactions in step three. Participants from the believer and atheist sample were removed based on the previous control variables that differed between groups (i.e., gender, age, education, nature of death, and relationship to the deceased); see Appendix H for this demographic information. Participants were not removed based on their scores on each scale used in this study. These additional data cleaning procedures resulted in a sample of 182, with 91 believers and 91 atheists. A MANOVA was again used to assess differences between groups. Box's test of equality of covariance matrices was significant, suggesting that covariate matrices of dependent variables were not equal among groups. As a result, Pillai's Trace was used to assess significance (Meyers, Gamst, & Guarino, 2006). In order to reduce the chance of a type I error, a Bonferroni adjusted alpha level was created by dividing 0.05 by the number of dependent variables, resulting in a Bonferroni adjusted alpha level of .008 (Brace, Kemp, & Snelgar, 2009). Results of the MANOVA suggested that there were no differences between groups, $F(5,176) = 1.45, p = .21$; Pillai's Trace = .04; partial $\eta^2 = .04$.

Predictors of Posttraumatic Growth

Results of the hierarchical regression analysis indicated that belief entered in step one contributed significantly to the regression model, $R^2 = .14, F[1, 181] = 29.63, p < .001$. Contrary to expectations, a belief in God(s) was significantly and positively related to posttraumatic growth. The predictor variables were entered in step two, and were significant in explaining more of the variance in posttraumatic growth beyond step one, $\Delta R^2 = .32, F[7, 174]$ of change = 14.95, $p < .001$. As expected, a higher level of active coping was a significant predictor of

posttraumatic growth. However, contrary to expectations, higher levels of emotional coping were also related to posttraumatic growth, and benevolence of the world, meaningfulness of the world, worthiness of self, presence of meaning, and search for meaning were unrelated to posttraumatic growth. Interaction effects added in step three were not significant in explaining more of the variance in the model, $\Delta R^2 = .02$, $F[7,167]$ of change = .80, $p = .59$ (see Table 3.1). In contrast to the prior analysis for posttraumatic growth with control variables, no significant interactions were present in this model.

Table 3.1.

Hierarchical Regression Model Predicting Outcomes of Posttraumatic Growth

$R^2 = .48$,
 $f^2 = 1.08$

Step and Variable	<i>B</i>	<i>SE B</i>	β	<i>t</i>	R^2	ΔR^2	<i>F</i>	ΔF	<i>df</i>
Step 1					.14	.14	29.63	29.63***	1,181
Belief in God	-.74	.14	-.38	-5.44***					
Step 2					.46	.32	18.78	14.95***	7,174
BoW	.07	.09	.05	.72					
MoW	-.41	.12	-.02	-.34					
WoS	-.01	.11	-.01	.07					
Presence	.06	.05	.08	1.12					
Search	.03	.05	.04	.62					
Active	1.00	.13	.50	7.68***					
Coping									
Emotional	.42	.12	.22	3.38**					
Coping									
Step 3					.48	.02	10.31	10.30	7,167
Belief X	.05	.19	.12	.27					
BoW									
Belief X	.30	.24	.50	1.25					
MoW									
Belief X	-.23	.23	-.50	-1.02					
WoS									
Belief X	.12	.10	.30	1.17					
Presence									
Belief X	-.17	.11	-.38	-1.47					
Search									
Belief X	.18	.27	.36	.66					
Active									
Belief X	.14	.26	.14	.54					
Emotional									

Note. * $p < .05$, ** $p < .01$, *** $p < .001$, $N = 299$. BoW = Benevolence of World, MoW = Meaningfulness of World, WoS = Worthiness of Self.

Predictors of Complicated Grief

Results of the hierarchical regression analysis indicated that belief entered in step one contributed significantly to the regression model, $R^2 = .22$, $F[1, 181] = 50.53$, $p < .001$. Contrary to expectations, a belief in God(s) was significantly and positively related to complicated grief. The predictor variables were entered in step two, and were significant in explaining more of the variance in posttraumatic growth beyond step one, $\Delta R^2 = .49$, $F[7, 174]$ of change = 52.44, $p < .001$. As expected, emotional coping was significantly and positively related to complicated grief, while presence of meaning was negatively related to complicated grief. Contrary to expectations, benevolence of the world, meaningfulness of the world, worthiness of self, search for meaning, and active coping were unrelated to complicated grief. Interaction effects added in step three were not significant in explaining more of the variance in the model, $\Delta R^2 = .02$, $F[7, 167]$ of change = 1.90, $p = .72$ (see Table 3.2). Similar to the controlled analysis for complicated grief, there was a significant interaction between belief and emotional coping, suggesting that at high levels of emotional coping, atheists and believers have more comparable levels of complicated grief than at low levels of emotional coping (see Figure 2).

Table 3.2.

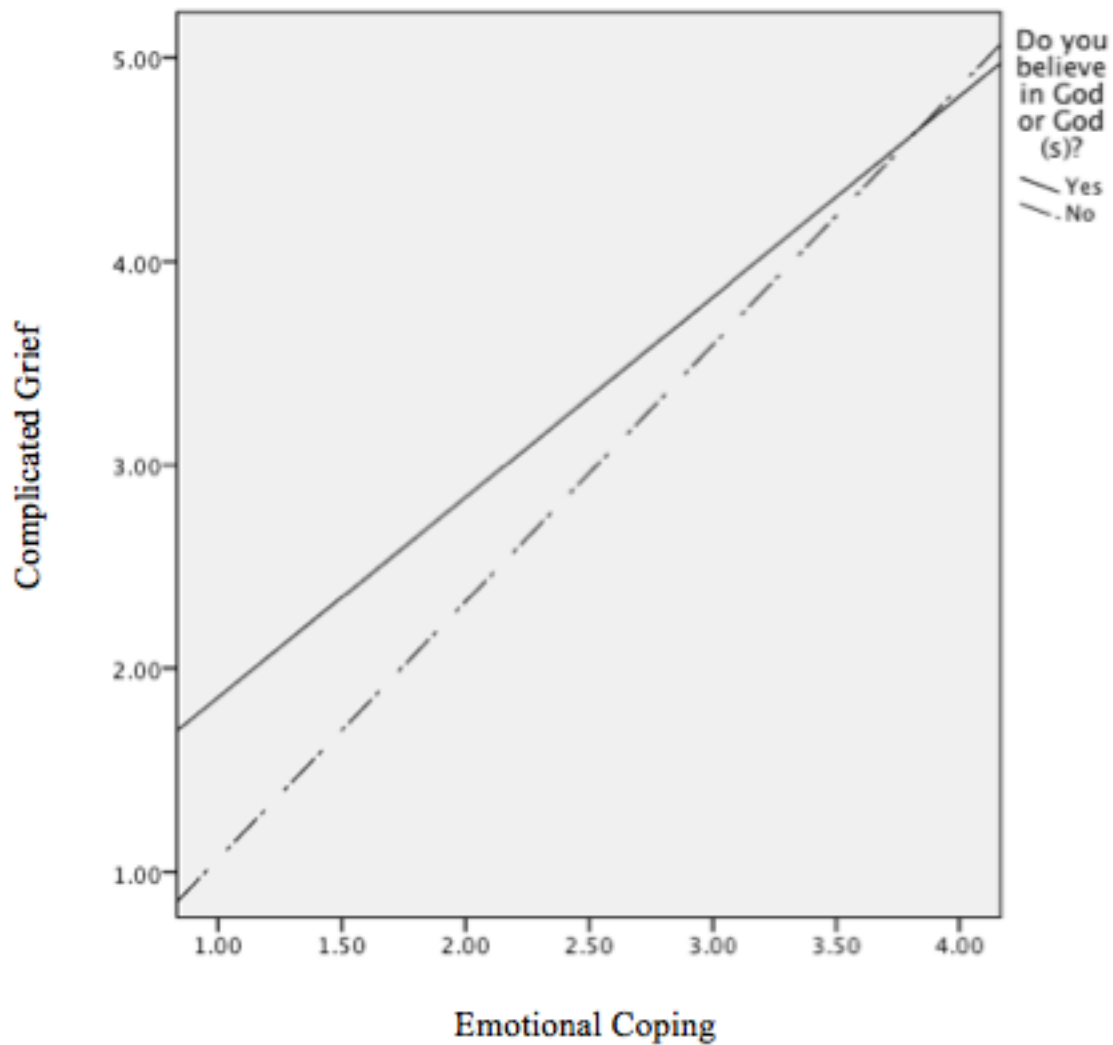
Hierarchical Regression Model Predicting Outcomes of Complicated Grief

$R^2 = .73$,
 $f^2 = .37$

Step and Variable	<i>B</i>	<i>SE B</i>	β	<i>t</i>	R^2	ΔR^2	<i>F</i>	ΔF	<i>df</i>
Step 1					.22	.22	50.53	50.53***	1,181
Belief in God	-.80	.11	-.47	-7.11***					
Step 2					.71	.49	52.44	41.43***	7,174
BoW	-.07	.06	-.06	-1.14					
MoW	-.10	.07	-.06	-1.35					
WoS	-.09	.07	-.08	-1.28					
Presence	-.09	.03	-.15	-2.99**					
Search	.01	.04	.02	.34					
Active	.01	.08	.01	.10					
Coping									
Emotional	.98	.08	.60	12.29***					
Step 3					.73	.02	29.87	1.90	7,167
Belief X	-.01	.12	-.03	-.09					
BoW									
Belief X	.10	.15	.19	.67					
MoW									
Belief X	-.10	.15	-.23	-.66					
WoS									
Belief X	.09	.06	.26	1.42					
Presence									
Belief X	-.12	.07	-.32	-1.70					
Search									
Belief X	.17	.17	.39	1.01					
Active									
Belief X	.42	.16	.48	2.57**					
Emotional									

Note. * $p < .05$, ** $p < .01$, *** $p < .001$, $N = 299$. BoW = Benevolence of World, MoW = Meaningfulness of World, WoS = Worthiness of Self.

Figure 2. Belief X Emotional Coping Interaction for Complicated Grief



Predictors of Psychological Distress

Results of the hierarchical regression analysis indicated that belief entered in step one contributed significantly to the regression model, $R^2 = .14$, $F[7, 167] = 28.84$, $p < .001$. Contrary to expectations, a belief in God(s) was significantly and positively related to psychological distress. The predictor variables were entered in step two, and were significant in explaining more of the variance in posttraumatic growth beyond step one, $\Delta R^2 = .45$, $F[7, 174]$ of change =

27.66, $p < .001$. As expected, worthiness of self and presence of meaning were significantly and negatively related to psychological distress, while emotional coping was related positively with psychological distress. Contrary to expectations, benevolence of the world, meaningfulness of the world, worthiness of self, search for meaning, and active coping were unrelated to psychological distress. Interaction effects added in step three were not significant in explaining more of the variance in the model, $\Delta R^2 = .02$, $F[7,167]$ of change = 1.01, $p = .42$ (see Table 3.3). No significant interactions were found in this model.

Table 3.3.
Hierarchical Regression Model Predicting Outcomes of Psychological Distress

$R^2 = .61$, $f^2 = .64$									
Step and Variable	<i>B</i>	<i>SE B</i>	β	<i>t</i>	R^2	ΔR^2	<i>F</i>	ΔF	<i>df</i>
Step 1					.14	.14	28.84	28.84***	1,181
Belief in God	-.47	.09	-.37	-5.37***					
Step 2					.59	.45	31.52	27.66***	7,174
BoW	-.02	.05	-.3	-.45					
MoW	.02	.06	.01	.25					
WoS	-.15	.06	-.17	-2.43*					
Presence	-.10	.03	-.21	-3.58***					
Search	.02	.03	.04	.64					
Active	.07	.07	.05	.94					
Coping									
Emotional	.59	.07	.49	8.61***					
Step 3					.61	.02	17.29	1.01	7,167
Belief X BoW	-.21	.10	-.73	-1.98					
Belief X MoW	-.11	.13	-.29	-.83					
Belief X WoS	.11	.13	.37	.88					
Belief X Presence	.06	.05	.24	1.07					
Belief X Search	-.01	.06	-.02	-.08					
Belief X Active	.04	.15	.11	.24					
Belief X Coping									
Emotional	.24	.14	.38	1.69					

Note. * $p < .05$, ** $p < .01$, *** $p < .001$, $N = 299$. BoW = Benevolence of World, MoW = Meaningfulness of World, WoS = Worthiness of Self.

CHAPTER 5

DISCUSSION

The aim of this study was to add to the literature on atheists in psychology. Previous studies have highlighted the dearth of research on atheists (e.g., Brewster et al, 2014; D’Andrea & Sprenger, 2007). This is particularly true in the empirical study of death, loss, and bereavement. Many individuals are turning away from religion and “coming out” of the atheist closet (Brewster, 2014), yet these experiences have not received much attention from researchers. In order to address the lack of research regarding atheism and bereavement, this study examined the relationship between cognitive, existential, and behavioral coping and posttraumatic growth, complicated grief, and psychological distress. Additionally, the relationship between belief in God(s) and posttraumatic growth, complicated grief, and psychological distress was examined. As most research has focused on the impact of religion or spirituality on death, loss, and bereavement, this study is positioned to make a unique contribution to grief literature, as it is among the first to empirically assess atheists. Additionally, this is the first known comparison of posttraumatic growth, complicated grief, and psychological distress for both atheists and believers.

The first hypothesis, which assessed the role of cognitive coping methods across three grief outcomes (posttraumatic growth, complicated grief, psychological distress), was partially supported. Both analyses (i.e., controlled for demographic variables and matched in demographic variables) indicated that higher levels of worthiness of self were negatively related to psychological distress, which is consistent to prior research (Janoff-Bulman, 1989; Lily, Valdez, & Graham-Bermann, 2010). However, worthiness of self was not related to posttraumatic growth or complicated grief, and scores on meaningfulness of world and benevolence of world subscales

were also unrelated to any of the outcome measures. One possible explanation for a lack of significant findings regarding cognitive coping styles may be the validity of the World Assumptions Scale used in this study. Indeed, recent studies have questioned the validity of this scale based on mixed evidence of construct validity (Kaler et al., 2008). Other researchers have noted that it is important to assess baseline assumptions about the world and how they change after a traumatic event (e.g., Schuler & Boals, 2015). The use of this scale without baseline comparisons to pre-loss comparisons to world assumptions may have limited the scale's utility.

The second hypothesis, which assessed the role of existential coping across three grief outcomes (posttraumatic growth, complicated grief, psychological distress), was also partially supported. Presence of meaning was negatively related to psychological distress in both the controlled and matched analysis, and negatively related to complicated grief in the matched analysis, which is similar to previous research findings (Davis, Nolen-Hoekesma, & Larson, 1998). Belief in God(s) also moderated the relationship between search for meaning and posttraumatic growth, as higher levels of search for meaning was positively related to posttraumatic growth in believers but not atheists. Contrary to expectations, presence of meaning was not related to posttraumatic growth in the controlled or matched sample. Also contrary to expectations was the finding that search for meaning was not related to posttraumatic growth, complicated grief, or psychological distress. Previous research found that atheists typically found meaning in life from maintaining a connection with family and friends, and from experiencing and enjoying the natural world (Smith-Stoner, 2007). As a result, atheists who have experienced the death of a close friend or family member might not have any "searching" to do, and might continue to cope by their connections with family, friends, and the natural world. Alternatively, those who believe in God(s) might rely on these beliefs to continue to search for answers. It is

not uncommon to hear those with a belief in God(s) state that God works in mysterious ways or that everything happens for a reason, and an active search for meaning might take place in order to better understand these mysterious ways and reasons.

The third hypothesis, which assessed the role of active coping across the three grief outcomes was partially supported. Here, active coping was positively related to posttraumatic growth in the controlled and matched analyses. This is consistent with prior research regarding active coping and posttraumatic growth (Wild & Pavio, 2004). Contrary to expectations, active coping was not significantly related to complicated grief or psychological distress in either model. Some studies (e.g., Meyer, 2001) also found no significant relationship between scores on the active coping questions and depression, and it might be that active coping is not a valid measure of positive or negative outcomes. However, it is not surprising that active coping methods (e.g., humor, social support, positive reinterpretation, etc.) are positively related to posttraumatic growth, as many individuals who are functioning well or perceiving some degree of positive outcomes during bereavement would be utilizing adaptive coping methods.

The fourth hypothesis, which assessed the link of emotional coping across the three grief outcomes was also partially supported. As expected, emotional coping was significantly and positively associated with complicated grief and psychological distress in both the controlled and matched models, which is consistent with prior research (Wild & Pavio, 2004). Contrary to expectations, emotional coping was also positively associated with posttraumatic growth in both models. Researchers have noted that some resilient individuals engage in pragmatic coping methods after traumatic events that involve “behaviors that under normal circumstances may be less effective or even maladaptive” (Bonanno & Mancini, 2008, p. 372). It is possible that the occurrence of what would typically be thought as unhelpful coping strategies and perceptions of

growth after a traumatic event coexist for many. Anyone who has experienced even a minor loss is likely to find themselves reacting in ways that would otherwise seem odd or maladaptive under normal circumstances (e.g., obsessive thoughts, rumination, poor diet, etc.). Thus, many experiencing the death of a close friend or family member might be coping in such ways while still meeting the everyday demands of life, or even perceiving some benefits after the loss. This finding is important in highlighting the coexisting negative and positive reactions during bereavement.

The fifth hypothesis regarding associations between belief in God(s) (believer or atheist) and outcomes of bereavement was not supported, and was the most surprising for this study. While previous research has suggested that there are no differences in the effectiveness of coping methods between atheists and religious individuals (Wilkinson and Coleman, 2010), this is the first known study to assess outcomes of bereavement with atheists. Research on the impact of religious beliefs on bereavement has been mixed in regards to positive outcomes after loss or a other potentially traumatic events (Chapple, Swift, & Ziebland, 2011; Pargament, Smith, Koenig, & Perez, 1998; Thompson and Vardaman, 1997) with no reference to those who were not religious or did not believe in God(s). The finding that belief in God(s) is positively related to posttraumatic growth indicates that there could be helpful aspects of belief when looking for the silver lining in loss. As posttraumatic growth has been criticized for focusing on outcomes that might not be necessary due to a natural resilience of many who have experienced a traumatic event (Bonanno, 2004; Westphal & Bonanno, 2007), this finding might not be detrimental to atheists. That is, finding a silver lining might not be important to individuals like many atheists who do not believe that the deceased are in a better place or that they will see them again (Christina, 2014).

Alternatively, this study is unique in that atheists, who are typically not involved in studies that address bereavement outcomes, were found to score significantly lower than those who endorsed a belief in God(s) in levels of complicated grief and psychological distress. Again, this could be related to Christina's (2014) assertion that atheists cannot escape the realities of death and must face the fact that people die. Anxieties about a loved one's ultimate fate might not be an issue for atheists who believe there is nothing after death. Another characteristic that has been found in individuals who cope well after bereavement is the ability to adjust to different situations (Bonanno, 2009). An atheist who loses a loved one to illness or accident might not experience as much stress as someone who believes in God(s) and wonders why their prayers were not answered. Similarly, previous studies have found anger at God to be a predictor of deleterious outcomes of bereavement (Exline, Park, Smyth, & Carey, 2011). By definition, an atheist has no God to direct their anger towards, whether the anger is in regards to taking a loved one or unanswered prayers.

Limitations

There are several limitations that should be considered when interpreting the findings of this study. One is the use of Internet recruitment and social media (e.g., Facebook, blogs, messages boards). Although some researchers have noted that online studies are particularly useful in recruiting atheists who might otherwise be hesitant to disclose this identity (Hammer et al., 2012), this sample was restricted to those who had the use of a computer and Internet connection.

A second limitation of this study is that the participants were predominately White women. While this is consistent with much of the extant bereavement literature, these findings cannot be generalized to men or people of color. Racial and gender diversity was not achieved in

this study despite targeted efforts of recruitment at online websites geared towards diverse atheists and religious groups. Despite this, participants in the atheist sample did parallel other studies of atheists in the United States (e.g., Bainbridge, 2005; Galen, 2009; Kosmin & Keysar, 2008; Zuckerman, 2007) in terms of education, political ideology, and race. Comparing the demographics of atheists in this study to overall atheist demographics in the United States suggests that White women were overrepresented in this sample (Pew, 2016).

A third limitation is that some participants were recruited from websites and blogs that are online communities for individuals who have experienced the death of someone they love. While this should not limit the ability to compare grief reactions between atheists and believers, the sample might be skewed more towards individuals who are experiencing higher levels of grief and distress compared to the norm, as individuals might seek out grief-related support sites if they are struggling with their grief. Previous research has indicated that resilience, rather than long-term grief-related distress, is experienced by a majority of the bereaved (Bonanno, 2004; Bonanno, Westphal, & Mancini, 2011).

Finally, the cross-sectional nature of this study does not allow for causal interpretations between the predictor and outcome variables. That is, it cannot be said that a belief in God(s) causes greater levels of posttraumatic growth, complicated grief, or psychological distress, it can only be said that these outcomes are associated with belief in God(s). Researchers have noted the benefits of longitudinal studies of grief that include nonbereaved control groups (as well as their limitations of being time consuming and potentially expensive), which could be employed in future studies to identify cause and effect relationships to a greater degree.

Implications for Practice, Research, and Future Directions

Results of this study offer a variety of insights in regards to practice and future research directions. First, results of this study suggest that there are several demographic variables and coping methods associated with posttraumatic growth, complicated grief, and psychological distress that clinicians can assess for in working with bereaved clients. Clinicians should be mindful of these associations and assess if they might be impacting their clients in positive or negative ways. This study examined a very small subset of the many variables that would impact a client's response to death or loss, and should be utilized in addition to a thorough intake session. Clinicians should also interpret the presence or absence of posttraumatic growth in clients with caution. The conceptualization of posttraumatic growth has been criticized for assessing perceptions of change rather than actual changes in behavior, and is typically assessed using cross-sectional designs (Jayawickreme & Blackie, 2014). Bereavement researchers have also noted that posttraumatic growth can also be related to negative outcomes of grief (Hobfoll et al., 2007), or might not even be necessary due to individual's natural propensity for resilience (Bonanno, 2004; Westphal & Bonanno, 2007). Thus, it is important to keep in mind that the lack of posttraumatic growth does not mean the absence of successful coping.

Another important implication for clinicians working with bereaved clients is the impact of belief in God(s). Many studies have addressed the benefits or mixed findings regarding belief in God(s), religion, or spirituality and bereavement, without the inclusion of atheists and other nonbelievers. One interpretation that could be made from the prior research finding benefits for belief in God(s), religion, or spirituality is that if having any of those beliefs are helpful, not have them are unhelpful. This study highlights the nuance in those findings, and positions atheists in the discussion of adaptive and resilient people. Some clinicians are likely already operating with

the assumption that a belief in God(s) is not necessary for successful coping with death and loss, as studies have indicated low rates of conventional religious beliefs in mental health professionals (Bergin & Jensen, 1990), and this study provides empirical support to these assumptions. Clinicians should also assess how clients that do believe in God(s) react to the death and loss. In addition to previously suggested correlates of distressing reactions during bereavement (e.g., anger at God), clinicians should assess how a client's belief system can be helpful or harmful in their response to grief and loss.

Due to the paucity of research on atheists, especially in regards to death, grief, and loss (Brewster et al., 2014; D'Andrea & Sprenger, 2007), much more research is warranted in both general atheist issues and atheist bereavement. One area for future exploration is what specific aspects of atheist identity moderate grief reactions. Although this study examined several areas of cognitive, existential, and behavior coping methods, there are many other variables to explore that likely have more significant relationships. Previous studies have suggested that attachment styles, perceived adequacy of instrumental and emotional support, relationship to the deceased, and size of social support networks have a significant impact on grief outcomes (Burke, Neimeyer, & McDevitt-Murphy, 2010; Meier, Carr, Currier, & Neimeyer, 2013; Lennon, Martin, & Dean, 1990). These variables can be used to assess if their relationships are consistent with atheist samples. Furthermore, Cronbach's Alpha levels reported in this study can be used in future research, as this is the first known study that uses these measures with atheists.

Another recommendation for future research is the use of a variety of methods for examining the experiences of atheists. While the empirical examination of bereaved atheists is severely lacking, many atheists have found support via online communities and blogs. Here, atheists can share stories and receive support from other nonbelievers during times where

unhelpful, and at times, hurtful, religious platitudes are predominant. Qualitative studies where atheists are able to describe their experience with death and loss, as well as coping and resilience could help to give a voice to this understudied group.

Future research should also include diverse atheist samples, particularly in examinations of bereavement where demographics are frequently skewed to over represent White women. Past studies have explored how religion can be helpful in coping and resilience for diverse groups such as African-Americans (Holt et al., 2009), while there is no known research on African-American or other atheists of color.

There are many promising avenues of research that can be pursued for atheists. Furthermore, many atheists are willing participants in research, and welcome studies that are affirming to their often stigmatized identity. Hopefully future research will uncover additional coping methods and positive aspects of being atheist.

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Appendix A

World Assumptions Scale
(Janoff-Bulman, 1989)**Strongly Disagree = 1****2****3****4****5****Strongly Agree = 6**

1. Misfortune is less likely to strike worthy, decent people
2. People are naturally unfriendly and unkind
3. Bad events are distributed to people at random
4. Human nature is basically good
5. The good things that happen in this world far outnumber the bad
6. The course of our lives is largely determined by chance
7. Generally, people deserve what they get in this world
8. I often think I am no good at all
9. There is more good than evil in this world
10. I am basically a lucky person
11. People's misfortunes result from the mistakes they have made
12. People don't really care what happens to the next person
13. I usually behave in ways that are likely to maximize good results for me
14. People will experience good fortune if they themselves are good
15. Life is too full of uncertainties that are determined by chance
16. When I think about it, I consider myself very lucky
17. I almost always make an effort to prevent bad things from happening to me

18. I have a low opinion of myself
19. By and large, good people get what they deserve in this world
20. Through our actions we can prevent bad things from happening to us
21. Looking at my life, I realize that chance events have worked out well for me
22. If people took protective actions, most misfortune could be avoided
23. I take the actions necessary to protect myself against misfortune
24. In general, life is mostly a gamble
25. The world is a good place
26. People are basically kind and helpful
27. I usually behave so as to bring about the greatest good for me
28. I am very satisfied with the kind of person I am
29. When bad things happen, it is typically because people have not taken the necessary actions to protect themselves
30. If you look closely enough, you will see that the world is full of goodness
31. I have reason to be ashamed of my personal character
32. I am luckier than most people

Appendix B

Meaning of Life Questionnaire (Steger, Frazier, Oishi, & Kaler, 2006)

Please take a moment to think about what makes your life and existence feel important and significant to you. Please respond to the following statements as truthfully and accurately as you can, and also please remember that these are very subjective questions and that there are no right or wrong answers. Please answer according to the scale below:

Absolutely Untrue = 1

2

3

Can't Say True or False = 4

5

6

Absolutely True = 7

1. I understand my life's meaning.
2. I am looking for something that makes my life feel meaningful.
3. I am always looking to find my life's purpose.
4. My life has a clear sense of purpose.
5. I have a good sense of what makes my life meaningful.
6. I have discovered a satisfying life purpose.
7. I am always searching for something that makes my life feel significant.
8. I am seeking a purpose or mission for my life.
9. My life has no clear purpose.
10. I am searching for meaning in my life

Appendix C

Brief COPE
(Carver, 1997)

These items deal with ways you've been coping with the stress in your life since you have experienced the death of a loved one in the past two years. There are many ways to try to deal with problems. These items ask what you've been doing to cope with this one. Obviously, different people deal with things in different ways, but I'm interested in how you've tried to deal with it. Each item says something about a particular way of coping. I want to know to what extent you've been doing what the item says. How much or how frequently. Don't answer on the basis of whether it seems to be working or not—just whether or not you're doing it. Use these response choices. Try to rate each item separately in your mind from the others. Make your answers as true FOR YOU as you can.

I haven't been doing this at all = 1

I've been doing this a little bit = 2

I've been doing this a medium amount = 3

I've been doing this a lot = 4

1. I've been turning to work or other activities to take my mind off things.
2. I've been concentrating my efforts on doing something about the situation I'm in.
3. I've been saying to myself "this isn't real."
4. I've been using alcohol or other drugs to make myself feel better.
5. I've been getting emotional support from others.
6. I've been giving up trying to deal with it.
7. I've been taking action to try to make the situation better.
8. I've been refusing to believe that it has happened.
9. I've been saying things to let my unpleasant feelings escape.
10. I've been getting help and advice from other people.
11. I've been using alcohol or other drugs to help me get through it.
12. I've been trying to see it in a different light, to make it seem more positive.
13. I've been criticizing myself.

14. I've been trying to come up with a strategy about what to do.
15. I've been getting comfort and understanding from someone.
16. I've been giving up the attempt to cope.
17. I've been looking for something good in what is happening.
18. I've been making jokes about it.
19. I've been doing something to think about it less, such as going to movies, watching TV, reading, daydreaming, sleeping, or shopping.
20. I've been accepting the reality of the fact that it has happened.
21. I've been expressing my negative feelings.
22. I've been trying to find comfort in my religion or spiritual beliefs.
23. I've been trying to get advice or help from other people about what to do.
24. I've been learning to live with it.
25. I've been thinking hard about what steps to take.
26. I've been blaming myself for things that happened.
27. I've been praying or meditating.
28. I've been making fun of the situation.

Appendix D

Posttraumatic Growth Inventory
(Tedeschi & Calhoun, 1996)

Listed below are 21 areas that are sometimes reported to have changed after traumatic events. Please mark the appropriate box beside each description indicating how much you feel you have experienced change in the area described after the death of a loved one in the past two years. The 0 to 5 scale is as follows:

- 0** = I did not experience this change as a result of the death
1 = I experienced this change to a very small degree
2 = a small degree
3 = a moderate degree
4 = a great degree
5 = a very great degree as a result of the death

1. My priorities about what is important in life.
2. An appreciation for the value of my own life.
3. I developed new interests.
4. A feeling of self-reliance.
5. A better understanding of spiritual matters.
6. Knowing that I can count on people in times of trouble.
7. I established a new path for my life.
8. A sense of closeness with others.
9. A willingness to express my emotions.
10. Knowing I can handle difficulties.
11. I'm able to do better things with my life.
12. Being able to accept the way things work out.
13. Appreciating each day.
14. New opportunities are available which wouldn't have been otherwise.
15. Having compassion for others.

16. Putting effort into my relationships.
17. I'm more likely to try and change things which need changing.
18. I have a stronger religious faith.
19. I discovered that I'm stronger than I thought I was.
20. I learned a great deal about how wonderful people are.
21. I accept needing others.

Appendix E

Inventory of Complicated Grief
(Prigerson et al., 1995)

Please fill in the circle next to the answer which best describes how you feel right now.

- 0** = Never
1 = Rarely
2 = Sometimes
3 = Often
4 = Always

1. I think about this person so much that it's hard for me to do the things I normally do...
2. The memories of the person who died upset me...
3. I feel I cannot accept the death of the person who died...
4. I feel myself longing for the person who died...
5. I feel drawn to places and things associated with the person who died...
6. I can't help feeling angry about his/her death...
7. I feel disbelief over what happened...
8. I feel stunned or dazed over what happened...
9. Ever since s/he died it's hard for me to trust people...
10. Ever since s/he died I feel like I have lost the ability to care about other people or I feel distant from people I care about...
11. I have pain in the same area of my body or have some of the same symptoms of the person who died...
12. I go out of my way to avoid reminders of the person who died...
13. I feel that life is empty without the person who died...
14. I hear the voice of the person who died speak to me...
15. I see the person who died stand before me...

16. I feel that it is unfair that I should live when this person died...
17. I feel bitter over this person's death...
18. I feel envious of others who have not lost someone close...
19. I feel lonely a great deal of the time ever since s/he died...

Appendix F

Hopkins Symptom Checklist – 25
(Derogatis, Lipman, Rickels, Uhlenhuth, & Covi, 1974)

Instructions

Listed below are symptoms or problems that people sometimes have. Please read each one carefully and describe how much the symptoms bothered you or distressed you in the last week, including today. Please click in the appropriate column.

- 1** = Not at all
2 = A little
3 = Quite a bit
4 = Extremely

1. Suddenly scared for no reason
2. Feeling fearful
3. Faintness, dizziness or weakness
4. Nervousness or shakiness inside
5. Heart pounding or racing
6. Trembling
7. Feeling tense or keyed up
8. Headache
9. Spell of terror or panic
10. Feeling restless or can't sit still
11. Feeling low in energy, slowed down
12. Blaming yourself for things
13. Crying easily
14. Loss of sexual interest or pleasure
15. Poor appetite
16. Difficulty falling asleep, staying asleep

- 17. Feeling hopeless about future
- 18. Feeling blue
- 19. Feeling lonely
- 20. Thought of ending your life
- 21. Feeling of being trapped or caught
- 22. Worry too much about things
- 23. Feeling no interest in things
- 24. Feeling everything is an effort
- 25. Feeling of worthlessness

Appendix G

Demographics Questionnaire

1. What is your age?
2. What is your race?
 - a. Asian-American
 - b. Black
 - c. Latina/o
 - d. Native American
 - e. White
 - f. Race not listed – Please type in your race
3. What is your preferred gender identity?
 - a. Woman
 - b. Man
 - c. Woman of transgender experience (for example: trans* woman, transsexual woman, MtF)
 - d. Man of transgender experience (for example: trans* man, transsexual man, FtM)
 - e. Gender nonconforming (e.g., androgynous, gender queer)
 - f. My gender is not listed here – Please type your gender identity
4. What is your sexual orientation?
 - a. Gay/lesbian
 - b. Mostly gay/lesbian
 - c. Bisexual
 - d. Mostly heterosexual
 - e. Heterosexual
 - f. Sexual orientation not listed – Please type in your sexual orientation
5. What is your highest completed level of education?

- a. Some high school or less
 - b. High school diploma
 - c. Some college
 - d. 2 year college degree
 - e. 4 year college degree
 - f. Some postgraduate
 - g. Postgraduate degree
6. What is your annual income?
- a. 0-20,000
 - b. 20,001-40,000
 - c. 40,001-60,000
 - d. 60,001-80,000
 - e. 80,001-100,000
 - f. 100,000 and above
7. What is your employment status?
- a. Full-time
 - b. Part-time
 - c. Unemployed
 - d. Retired
8. In what state do you currently reside? (If not based in the U.S., please list the country).
- a. State within the U.S. (please type state)
 - b. Country outside the U.S. (please type country outside the U.S.)
9. In what environment do you currently reside?
- a. Urban
 - b. Suburban
 - c. Rural
10. How do you describe your social class?
- a. Upper/Wealthy
 - b. Upper Middle
 - c. Lower Middle
 - d. Working

e. Poor/Low income

11. What best describes your political beliefs?

a. Liberal

b. Moderate

c. Conservative

12. Do you believe in God or God(s)?

a. Yes

b. No

c. Unsure

13. What is your religious group membership?

14. How do you define your disbelief in God or God(s)? (e.g., atheist, agnostic, humanist, etc.)

15. This study requires you to think about your experiences after the death of a close friend or family member. Please list your relationship to the person you are thinking about, and specify your relationship in the space provided if you select "Family member".

a. Friend

b. Family member (Please type in your relationship; for example: father, mother, uncle)

16. Was the death:

a. Anticipated

b. Unanticipated

Appendix H

Matched Demographics of Believers and Atheists

Variable	Believer	Atheist
Age	$M = 47.04, SD = 10.58, Mdn = 50$	$M = 45.66, SD = 11.02, Mdn = 45$
Gender		
Other than	4%	10%
Woman		
Woman	95%	90%
Education		
Some high school	1%	0%
High school	4%	6%
Some college	20%	22%
2 year degree	22%	17%
4 year degree	32%	25%
Some postgraduate	9%	11%
Postgraduate	11%	20%
Nature of Death		
Anticipated	26%	39%
Unanticipated	74%	62%
Relationship		
Friend	4%	9%
Family	96%	91%
Race		
White	87%	93%
Non-White	11%	7%
Income		
0-20,000	6%	14%
20,001-40,000	24%	20%
40,001-60,000	28%	25%
60,001-80,000	17%	17%
80,000-100,000	10%	11%
100,000+	14%	12%
Sexual Orientation		
Gay/lesbian	0%	2%
Mostly gay/lesbian	0%	1%
Bisexual	3%	9%
Mostly heterosexual	2%	13%
Heterosexual	91%	74%
Not listed	2%	1%
Employment Status		
Full-time	57%	54%
Part-Time	14%	13%
Unemployed	17%	21%
Retired	11%	11%

Environment		
Urban	10%	19%
Suburban	58%	55%
Rural	30%	26%
Social Class		
Upper/wealthy	1%	1%
Upper middle	50%	34%
Lower middle	28%	40%
Working	20%	19%
Poor/low income	1%	6%
Political Belief		
Liberal	23%	74%
Moderate	32%	12%
Conservative	34%	3%
Other	4%	10%

Appendix I

Summary of Hypotheses and Results

Hypothesis	Result	Description
1. Higher levels of self-worth, meaningfulness of the world, and benevolence of the world as measured by the World Assumptions Scale, would be positively related to levels of posttraumatic growth and negatively related to complicated grief and psychological distress.	Partially supported.	Worthiness of self was negatively related to psychological distress in both the controlled and matched analyses.
2. Higher levels of existential coping, as measured by the Meaning in Life Questionnaire, would be positively related to levels of posttraumatic growth and negatively related to complicated grief and psychological distress	Partially supported.	Presence of meaning was negatively related to psychological distress in both the controlled and matched analysis, and negatively related to complicated grief in the matched analyses.
3. Higher levels of active coping, as measured by the Brief COPE, would be positively related to levels of posttraumatic growth and negatively related to complicated grief and psychological distress.	Partially supported.	Active coping was positively related to posttraumatic growth in both the controlled and matched analyses.
4. Higher levels of emotional coping, as measured by the Brief COPE, would be negatively related to levels of posttraumatic growth and positively related to complicated grief and psychological distress.	Partially supported.	Emotional coping was positively related with posttraumatic growth, complicated grief, and psychological distress in both the controlled and matched analyses.

5. Belief in God(s) would not be related to posttraumatic growth, complicated grief, or psychological distress.

Not supported.

Belief in God(s) was positively related to posttraumatic growth, complicated grief, and psychological distress.

Appendix J

Informed Consent

PRINCIPAL INVESTIGATOR: Jacob S. Sawyer

RESEARCH STUDY: Factors Contributing to Posttraumatic Growth in Atheists Following Bereavement: An Exploratory Study

DESCRIPTION OF THE RESEARCH: You are invited to participate in a study on atheist values and experiences. The procedure of this study will include reading a list of statements, and then indicating your agreement with the statements.

In order to participate in this study, you must be aged 18 or over and:

- (1) Live in the U.S.
- (2) Have experienced the death of close friend or family member in the past two years

This study is being conducted by Jacob S. Sawyer, who is a counseling psychology doctoral candidate in the Department of Counseling and Clinical Psychology at Teachers College, Columbia University. This study has been approved by the Institutional Review Board of Teachers College, Columbia University (Protocol #15-395).

RISKS AND BENEFITS: Thinking about the death of a close friend or family member might elicit stress or discomfort. Please know that you are free to end your participation at any time. Additional risks may include fatigue, confusion, or mild discomfort when thinking about your own personal values. There are no assured benefits from participating in this study.

DATA STORAGE TO PROTECT CONFIDENTIALITY: Your responses in this study will be private and anonymous. All data will be kept confidential and will only be reported in a conglomerate format (only reporting combined results and never reporting individual results). All questionnaires will be concealed, and no one other than the Primary Investigator and his Faculty Sponsor will have access to them. The data collected will be stored in the HIPPA-compliant, Qualtrics-secure database until it has been deleted by the Primary Investigator.

TIME INVOLVEMENT: Your participation will take approximately 20 minutes.

HOW WILL RESULTS BE USED: The results from this study may be presented at conferences, meetings, articles, or used for educational purposes.

Appendix K

PARTICIPANT'S RIGHTS

- I have read the Research Description above and understand that my participation in this study is completely voluntary.
- I may refuse to participate or withdraw from participation at any time without jeopardy to future medical care, employment, student status or other entitlements.
- The researcher may withdraw me from the research at his/her professional discretion.
- If, during the course of the study, significant new information that has been developed becomes available which may relate to my willingness to continue to participate, the investigator will provide this information to me.
- Any information derived from the research project that personally identifies me will not be voluntarily released or disclosed without my separate consent, except as specifically required by law.
- If at any time I have any questions regarding the research or my participation, I can contact the investigator, Jacob S. Sawyer (jss2217@tc.columbia.edu) or the Faculty Sponsor, Dr. Melanie Brewster (melanie.brewster@tc.columbia.edu), who will answer my questions.
- If at any time I have comments, or concerns regarding the conduct of the research or questions about my rights as a research subject, I should contact the Teachers College, Columbia University Institutional Review Board /IRB. The phone number for the IRB is (212) 678-4105. Or, I can write to the IRB at Teachers College, Columbia University, 525 W. 120th Street, New York, NY, 10027, Box 151.
- For my personal records, I should print a copy of the Research Description and this Participant's Rights document.
- I should receive a copy of the Research Description and this Participant's Rights document.
- By checking the box below and clicking “Next”, I agree to participate in this study.
- YES, I have read and understand the above, and I agree to participate in this study.

[[NEXT]]

Appendix L

Recruitment Message

Hello,

You are invited to participate in my dissertation project, which is a study on values and experiences with bereavement. The procedure of this study will include reading a list of statements, and then indicating your agreement with the statements. This survey should only take about 20 minutes.

If you are willing and eligible, please just click on the link below to continue. Thank you in advance for your time and please feel free to pass on to anyone who might be interested.

Eligibility Criteria:

- Must be at least 18 years old
- Must live in the U.S.
- Must have experienced the death of a close family member or friend in the past two years

If you meet the above criteria and are interested in participating, please click on the link below to begin the short survey.

[Qualtrics Survey Link]

***This study has been approved by the Teachers College, Columbia University Institutional Review Board: Protocol #15-395. If you have any complaints, questions, concerns, or would like to know the results, please feel free to contact me via e-mail at jss2217@tc.columbia.edu.